ORDER NO. SD81051895C8

Service Manual

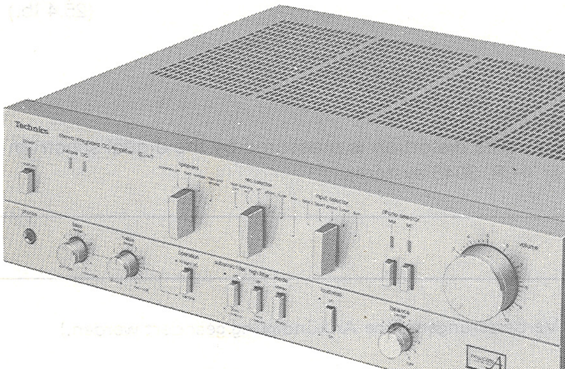
Stereo Integrated DC Amplifier

SU-V7

[D],[EG],[EW],[EK],[EF],
[EH],[EB],[XA],[XL]

SU-V7(K)

[D],[EG],[EW],[EH],
[EA],[XA]



Areas

* [D] is available in Scandinavia.
* [EG] is available in F.R. Germany.
* [EW] is available in Switzerland.
* [EK] is available in United Kingdom.
* [EF] is available in France.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [EA] is available in Austria.
* [XA] is available in East South Asia, Oceania, Africa, Middle Near East and Central South America.
* [XL] is available in Australia.

* The cabinet and front panel are available in black color and silver types.
* The black type model is provided with (K) in the Service Manual.

English

Specifications

(Specifications are subject to change without notice for further improvement.)

(DIN 45 500)

■ AMPLIFIER SECTION

20 Hz~20 kHz continuous power output	
both channels driven	2 × 80W (4Ω)
	2 × 80W (8Ω)
40 Hz~16 kHz continuous power output	
both channels driven	2 × 80W (4Ω)
	2 × 80W (8Ω)
1 kHz continuous power output	
both channels driven	2 × 80W (4Ω)
	2 × 80W (8Ω)
Total harmonic distortion	
rated power at 20 Hz~20 kHz	0.007% (4Ω)
	0.003% (8Ω)
rated power at 40 Hz~16 kHz	0.007% (4Ω)
	0.003% (8Ω)
rated power at 1 kHz	0.007% (4Ω)
	0.003% (8Ω)
half power at 20 Hz~20 kHz	0.003% (8Ω)
half power at 1 kHz	0.003% (8Ω)
−26 dB power at 1 kHz	0.03% (4Ω)
50 mW power at 1 kHz	0.08% (4Ω)
Intermodulation distortion	
rated power at 250 Hz: 8 kHz=4:1, 4Ω	0.01%
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0.007%
Power bandwidth	
both channels driven, −3 dB	
	5 Hz~70 kHz (4Ω THD 0.03%)
	5 Hz~70 kHz (8Ω THD 0.02%)

Residual hum and noise	0.55 mV
Damping factor	20 (4Ω), 40 (8Ω)
Input sensitivity and impedance	
PHONO MM	2.5 mV/47kΩ
MC	170 μV/220Ω
TUNER, AUX	150 mV/27kΩ
TAPE 1 REC/PLAY	170 mV/25kΩ
TAPE 2	150 mV/27kΩ
PHONO maximum input voltage (1 kHz, RMS)	
MM	150 mV
MC	10 mV
S/N	
rated power (4Ω)	
PHONO MM	78 dB (IHF, A: 86dB)
MC	68 dB (IHF, A: 68dB)
TUNER, AUX	90 dB (IHF, A: 100 dB)
−26 dB power (4Ω)	
PHONO MM	67 dB
MC	65 dB
TUNER, AUX	68 dB
50 mW power (4Ω)	
PHONO MM	64 dB
MC	62 dB
TUNER, AUX	65 dB
Frequency response	
PHONO	RIAA standard curve
	±0.5 dB (30 Hz~15 kHz)
TUNER, AUX, TAPE	0.5 Hz~170 kHz (−3 dB)
	+0 dB (20 Hz~20 kHz)
	−0.2 dB (20 Hz~20 kHz)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Tone controls	
BASS	50 Hz, +10 dB~ −10 dB
TREBLE	20 kHz, +10 dB~ −10 dB
Subsonic filter	20 Hz, −12 dB/oct.
High-cut filter	7 kHz, −6 dB/oct.
Loudness control (volume at −30 dB)	50 Hz, +9 dB
Output voltage and impedance	
REC OUT	150 mV
REC/PLAY	30 mV/82kΩ
Channel balance, AUX 250 Hz~6,300 Hz	±1.0 dB
Channel separation, AUX 1 kHz	55 dB
Headphones output level and impedance	460 mV/330Ω
Load impedance	
MAIN or REMOTE	4Ω~16Ω
MAIN and REMOTE	8Ω~16Ω

■ GENERAL

Power consumption	630W
Power supply	AC 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (W×H×D)	430 × 120 × 330 mm (16-15/16" × 4-23/32" × 13")
Weight	11.5 kg (25.4 lb.)

Note:
Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Deutsch

TECHNISCHE DATEN (Spezifikationen Können infolge von Verbesserungen ohne Ankündigung geändert werden.) (DIN 45 500)

■ VERSTÄRKERTEIL

Dauerton-Ausgangsleistung bei 20 Hz ~ 20 kHz	
beide Kanäle ausgesteuert	2 × 80W (4 Ω) 2 × 80W (8 Ω)
Dauerton-Ausgangsleistung bei 40 Hz ~ 16 kHz	
beide Kanäle ausgesteuert	2 × 80W (4 Ω) 2 × 80W (8 Ω)
Dauerton-Ausgangsleistung bei 1 kHz	
beide Kanäle ausgesteuert	2 × 80W (4 Ω) 2 × 80W (8 Ω)
Gesamtklirrfaktor	
Nennleistung bei 20 Hz ~ 20 kHz	0,007% (4 Ω) 0,003% (8 Ω)
Nennleistung bei 40 Hz ~ 16 kHz	0,007% (4 Ω) 0,003% (8 Ω)
Nennleistung bei 1 kHz	0,007% (4 Ω) 0,003% (8 Ω)
halbe Nennleistung bei 20 Hz ~ 20 kHz	0,003% (8 Ω)
halbe Nennleistung bei 1 kHz	0,003% (8 Ω)
−26 dB Leistung bei 1 kHz	0,03% (4 Ω)
50 mW Leistung bei 1 kHz	0,08% (4 Ω)
Intermodulationsfaktor	
Nennleistung bei 250 Hz: 8 kHz = 4:1, 4 Ω	0,01%
Nennleistung bei 60 Hz: 7 kHz = 4:1, nach SMPTE, 8 Ω	0,007%
Leistungsbandbreite	
beide Kanäle ausgesteuert bei −3 dB	5 Hz ~ 70 kHz (4 Ω, THD 0,03%) 5 Hz ~ 70 kHz (8 Ω, THD 0,02%)
Restbrumm und Geräusch	0,55 mV
Dämpfungsfaktor	20 (4 Ω), 40 (8 Ω)
Eingangsempfindlichkeit und -impedanz	
Phono - magnetisch (PHONO MM)	2,5 mV/47 kΩ
Phono - dynamisch (PHONO MC)	170 μV/220 Ω
Tuner, Aux	150 mV/27 kΩ
Tape 1 Aufnahme/Wiedergabe (TAPE 1 REC/PLAY)	170 mV/25 kΩ
Tape 2 (TAPE 2)	150 mV/27 kΩ
Maximale TA-Eingangsspannung (1 kHz, eff.)	
magnetisch (MM)	150 mV
dynamisch (MC)	10 mV

Bemerkung:
Der Gesamtklirrfaktor wurde mit einem digitalen Rauschspektrometer (Anlage H.P. 3045) gemessen.

Geräuschabstand	
Nennleistung (4 Ω)	
Phono - magnetisch (PHONO MM)	78 dB (86 dB nach IHF, A)
Phono - dynamisch (PHONO MC)	68 dB (68 dB nach IHF, A)
Tuner, Aux	90 dB (nach IHF, A: 100 dB)
−26 dB Leistung (4 Ω)	
Phono - magnetisch (PHONO MM)	67 dB
Phono - dynamisch (PHONO MC)	65 dB
Tuner, Aux	68 dB
50 mW Leistung (4 Ω)	
Phono - magnetisch (PHONO MM)	64 dB
Phono - dynamisch (PHONO MC)	62 dB
Tuner, Aux	65 dB
Frequenzgang	
Phono	RIAA-Standardkurve ±0,5 dB (30 Hz ~ 15 kHz)
Tuner, Aux, Tape	0,5 Hz ~ 170 kHz(−3 dB) +0 dB (20 Hz ~ 20 kHz) −0,2 dB (20 Hz ~ 20 kHz)
Klangregler	
Baßregler (BASS)	50 Hz, +10 dB ~ −10 dB
Höhenregler (TREBLE)	20 kHz, +10 dB ~ −10 dB
Tiefenfilter	20 Hz, −12 dB/Okt.
Rauschfilter	7 kHz, −6 dB/Okt.
Gehörrichtige Lautstärkekorrektur (Loudness) (bei −30 dB Ausgangsleistung)	50 Hz, +9 dB
Ausgangsspannung und -impedanz	
Aufnahme (REC OUT)	150 mV
Aufnahme/Wiedergabe (REC/PLAY)	30 mV/82 kΩ
Kanalabweichung (Aux, 250 Hz ~ 6300 Hz)	±1,0 dB
Übersprechdämpfung (Aux, 1 kHz)	55 dB
Kopfhörerpegel und -impedanz	460 mV/330 Ω
Lautsprecherimpedanz	
MAIN oder REMOTE	4 Ω ~ 16 Ω
MAIN und REMOTE	8 Ω ~ 16 Ω

■ ALLGEMEINE DATEN

Leistungsaufnahme	630 W
Netzspannung	Wechselstrom 50 Hz/60 Hz, 110V/120V/220V/240V
Abmessungen (B×H×T)	430 × 120 × 330 mm
Gewicht	11,5 kg

Français

CARACTERSTIQUES

(Sujet à changement sans préaris.)

(DIN 45 500)

■ SECTION AMPLIFICATEUR

Puissance de sortie continue de 20 Hz~20 kHz, les deux canaux en circuit	2 × 80W (4Ω)
	2 × 80W (8Ω)
Puissance de sortie continue de 40 Hz~16 kHz, les deux canaux en circuit	2 × 80W (4Ω)
	2 × 80W (8Ω)
Puissance de sortie continue à 1 kHz les deux canaux en circuit	2 × 80W (4Ω)
	2 × 80W (8Ω)
Distorsion harmonique totale	
à puissance nominale (20 Hz~20 kHz)	0,007% (4Ω)
	0,003% (8Ω)
à puissance nominale (40 Hz~16 kHz)	0,007% (4Ω)
	0,003% (8Ω)
à puissance nominale (1 kHz)	0,007% (4Ω)
	0,003% (8Ω)
à demi-puissance (20 Hz~20 kHz)	0,003% (8Ω)
à demi-puissance (1 kHz)	0,003% (8Ω)
puissance de −26 dB à 1 kHz	0,03% (4Ω)
puissance de 50 mW à 1 kHz	0,08% (4Ω)
Distorsion d'intermodulation	
à puissance nominale à 250 Hz: 8 kHz=4:1, 4Ω	0,01%
à puissance nominale à 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0,007%
Réponse de fréquences	
les deux canaux en circuit, −3 dB	5 Hz~70 kHz (4Ω, THD 0,03%)
	5 Hz~70 kHz (8Ω, THD 0,02%)
Bruit et ronflement résiduels	0,55 mV
Coefficient d'amortissement	20 (4Ω), 40 (8Ω)
Sensibilité et impédance d'entrée	
PHONO, AIMANT MOBILE (PHONO MM)	2,5 mV/47kΩ
PHONO, BOBINE MOBILE (PHONO MC)	170 µV/220Ω
SYNTONISATEUR, AUX (TUNER, AUX)	150 mV/27kΩ
BANDE 1, ENREGISTREMENT/LECTURE (TAPE 1 REC/PLAY)	170 mV/25kΩ
BANDE 2 (TAPE 2)	150 mV/27kΩ
PHONO (tension d'entrée maximum, 1 kHz RMS)	
AIMANT MOBILE (MM)	150 mV
BOBINE MOBILE (MC)	10 mV
Signal/Bruit	
à puissance nominale (4Ω)	
PHONO, AIMANT MOBILE (PHONO MM)	78 dB (86 dB, IHF, A)
PHONO, BOBINE MOBILE (PHONO MC)	68 dB (68 dB, IHF, A)
SYNTONISATEUR, AUX (TUNER, AUX)	90 dB (IHF, A: 100 dB)
puissance de −26 dB (4Ω)	
PHONO, AIMANT MOBILE (PHONO MM)	67 dB
PHONO, BOBINE MOBILE (PHONO MC)	65 dB
SYNTONISATEUR, AUX (TUNER, AUX)	68 dB
puissance de 50 mW (4Ω)	
PHONO, AIMANT MOBILE (PHONO MM)	64 dB
PHONO, BOBINE MOBILE (PHONO MC)	62 dB
SYNTONISATEUR, AUX (TUNER, AUX)	65 dB
Réponse de fréquence	
PHONO	Courbe nominale RIAA
	±0,5 dB (30 Hz~15 kHz)
SYNTONISATEUR, AUX, BANDE (TUNER, AUX, TAPE)	0,5 Hz~170 kHz (−3 dB)
	+0 dB (20 Hz~20 kHz)
	−0,2 dB (20 Hz~20 kHz)
Réglage de la tonalité	
BASSES (BASS)	50 Hz, +10 dB~ −10 dB
AIGUS (TREBLE)	20 kHz, +10 dB~ −10 dB
Filtre subsonique	20 Hz, −12 dB/oct.
Filtre coupe-hauts	7 kHz, −6 dB/oct.
Compensateur physiologique (volume à −30 dB)	50 Hz, +9 dB
Tension de sortie et impédance	
SORTIE ENREGISTREMENT (REC OUT)	150 mV
ENREGISTREMENT/LECTURE (REC/PLAY)	30 mV/82kΩ
Equilibrage des canaux, AUX 250 Hz~6 300 Hz	±1,0 dB
Séparation des canaux, AUX 1 kHz	55 dB
Niveau de sortie des casques et impédance	460 mV/330Ω
Impédance de charge	
PRINCIPALE ou AUXILIAIRE (MAIN or REMOTE)	4Ω~16Ω
PRINCIPALE et AUXILIAIRE (MAIN and REMOTE)	8Ω~16Ω

■ DIVERS

Consommation	630W
Alimentation	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (L×H×Pr)	430 × 120 × 330 mm
Poids	11,5 kg

Nota:
La Société NATIONAL-PANASONIC-FRANCE, importateur du matériel MATSUSHITA-ELECTRIC déclare que cet appareil est conforme aux prescriptions de la directive 76/889/C.E.E. (arrêté 14 Janvier 1980).

Remarque:
On mesure la distorsion harmonique totale au moyen d'un analyseur de spectre digital (Système H.P. 3045).

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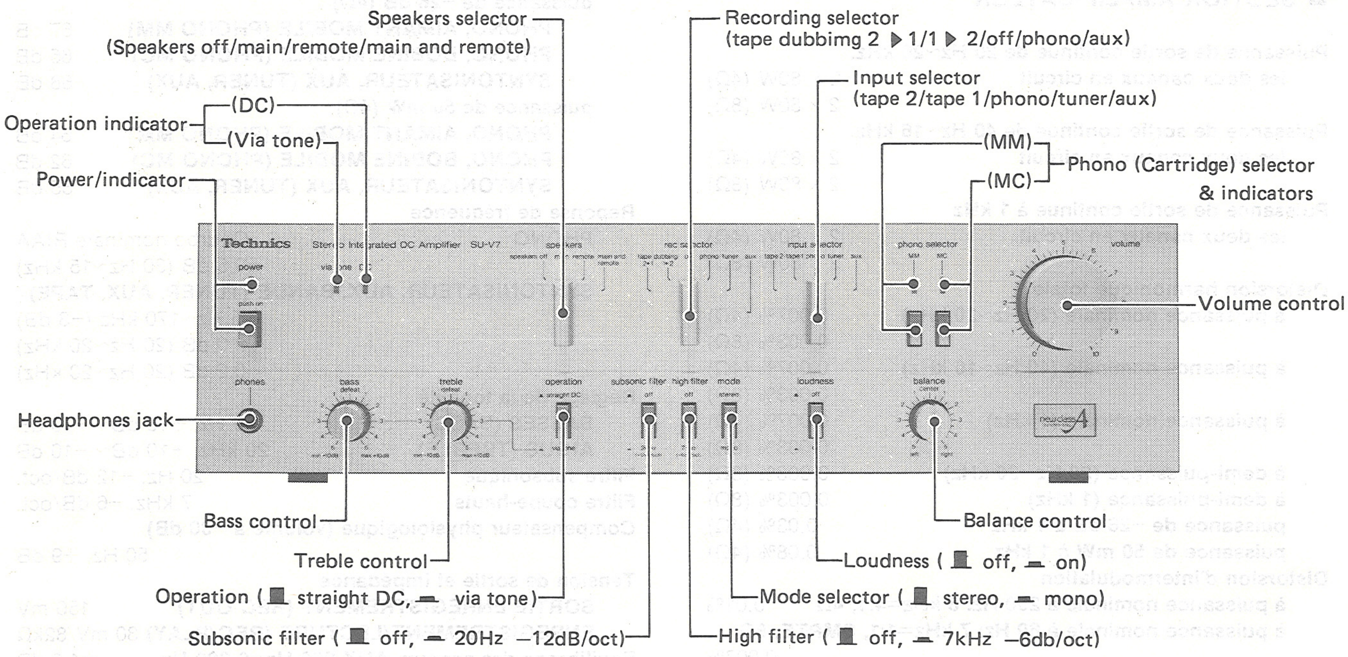
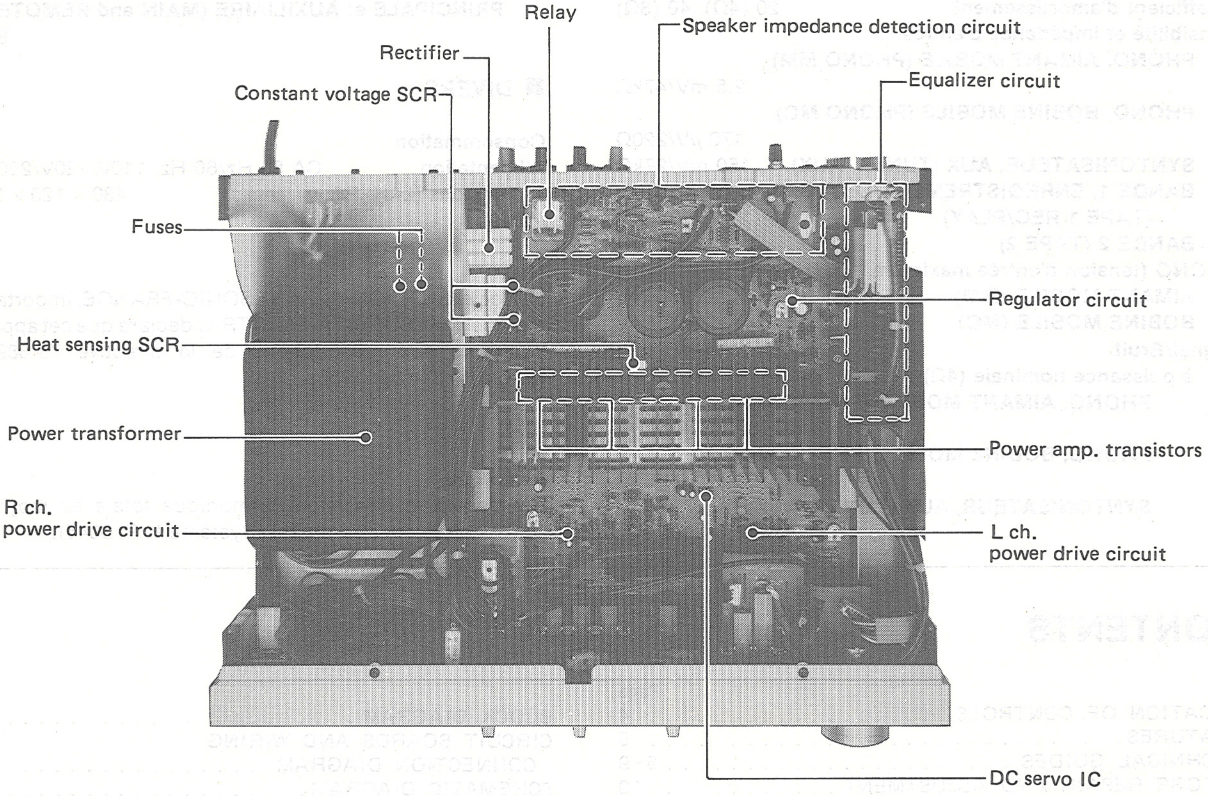
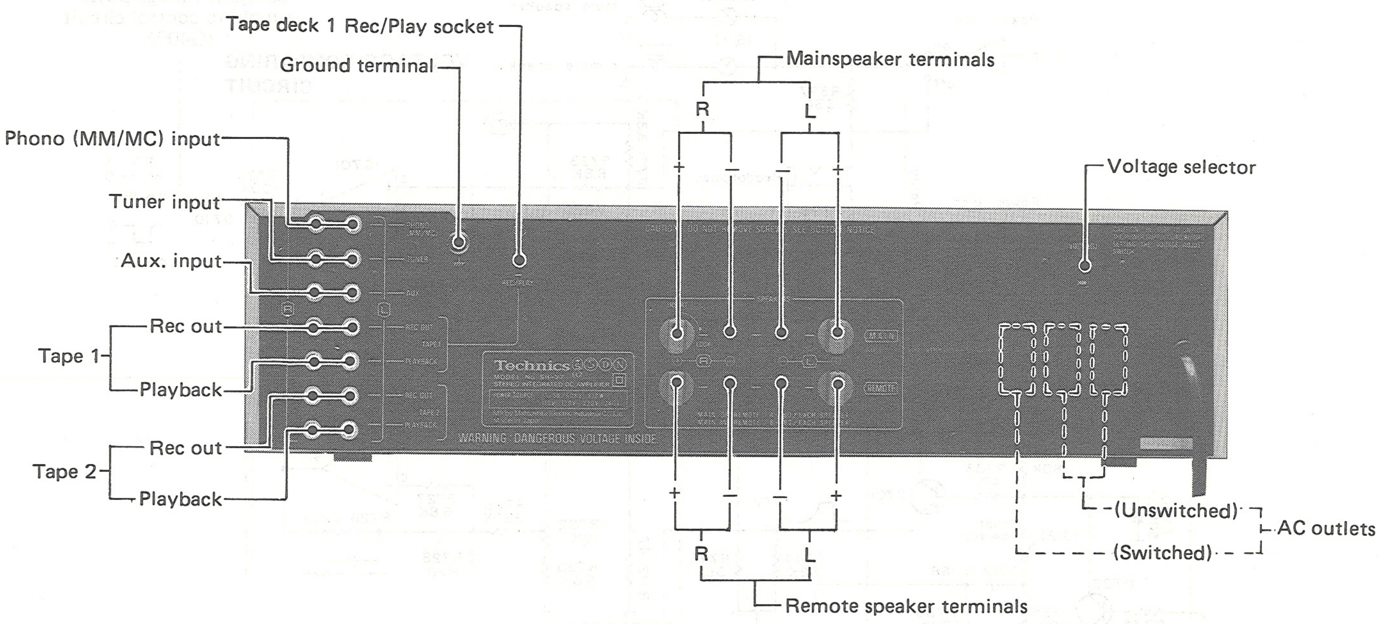
LOCATION OF CONTROLS


Speakers selector
(Speakers off/main/remote/main and remote)
Recording selector
(tape dubbimg 2 ▶ 1/1 ▶ 2/off/phono/aux)
Input selector
(tape 2/tape 1/phono/tuner/aux)
Operation indicator
(DC)
(Via tone)
Power/indicator
(MM)
(MC)
Phono (Cartridge) selector & indicators
Volume control
Technics
Stereo Integrated DC Amplifier SU-V7
Headphones jack
Bass control
Treble control
Operation (▆ straight DC, ▬ via tone)
Subsonic filter (▆ off, ▬ 20Hz −12dB/oct)
High filter (▆ off, ▬ 7kHz −6db/oct)
Mode selector (▆ stereo, ▬ mono)
Loudness (▆ off, ▬ on)
Balance control


Relay
Rectifier
Constant voltage SCR
Speaker impedance detection circuit
Equalizer circuit
Fuses
Regulator circuit
Heat sensing SCR
Power transformer
Power amp. transistors
R ch.
power drive circuit
L ch.
power drive circuit
DC servo IC


Tape deck 1 Rec/Play socket
Ground terminal
Mainspeaker terminals
R
L
Phono (MM/MC) input
Voltage selector
Tuner input
Aux. input
Rec out
Tape 1
Playback
Rec out
Tape 2
Playback
(Unswitched)
AC outlets
(Switched)
R
L
Remote speaker terminals
Technics

* The product for destination [XA] is equipped with AC outlets.

FEATURES

Constant voltage power supply circuit using thyristors (SCR)

- New Class A circuit free from switching and cross-over distortion, and power amplifier with DC servo amp mounted.
- Linear feedback circuit that ensures zero distortion of theoretical value.
- Low-noise, high gain ICL equalizer circuit of which direct connection of MC cartridge is possible.
- High S/N, low-distortion NF type tone control.
- Electronic protection circuit that protects the speakers and amplifier from breakdown.
- Speaker impedance detection circuit.

TECHNICAL GUIDES

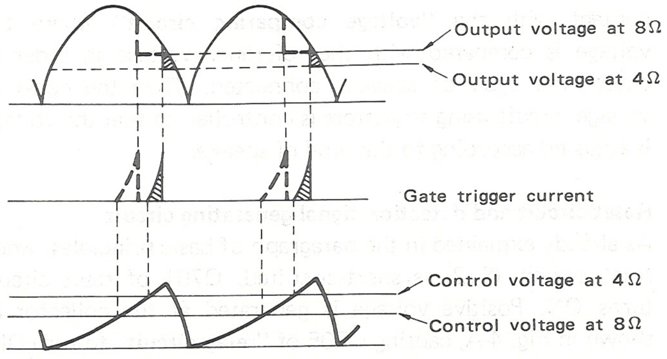
1. CONSTANT VOLTAGE CIRCUIT USING THYRISTORS (SCR)

This circuit serves to keep constant the voltage supplied to all stages including the output stage through phase angle control (time control of conduction angle) of two SCR (thyristors) located on the secondary side of power transformer. The main features of this circuit are as follows:

1. Power impedance is about 1/10 of the conventional one.
2. Supply voltage does not fluctuate even during reproduction of low-pitched sound at a large amplitude. (Good transient response)
3. It is unnecessary to raise the voltage for no-signal mode to get prepared for voltage drop due to large current load. (High efficiency)
4. The output in 4Ω load can be controlled to the same level as in 8Ω load. (The thermal stability of output can be kept at a high level.)
5. Since the thyristors are located on the secondary side, the transformer coil serves as a buffer to prevent interference with other equipment.

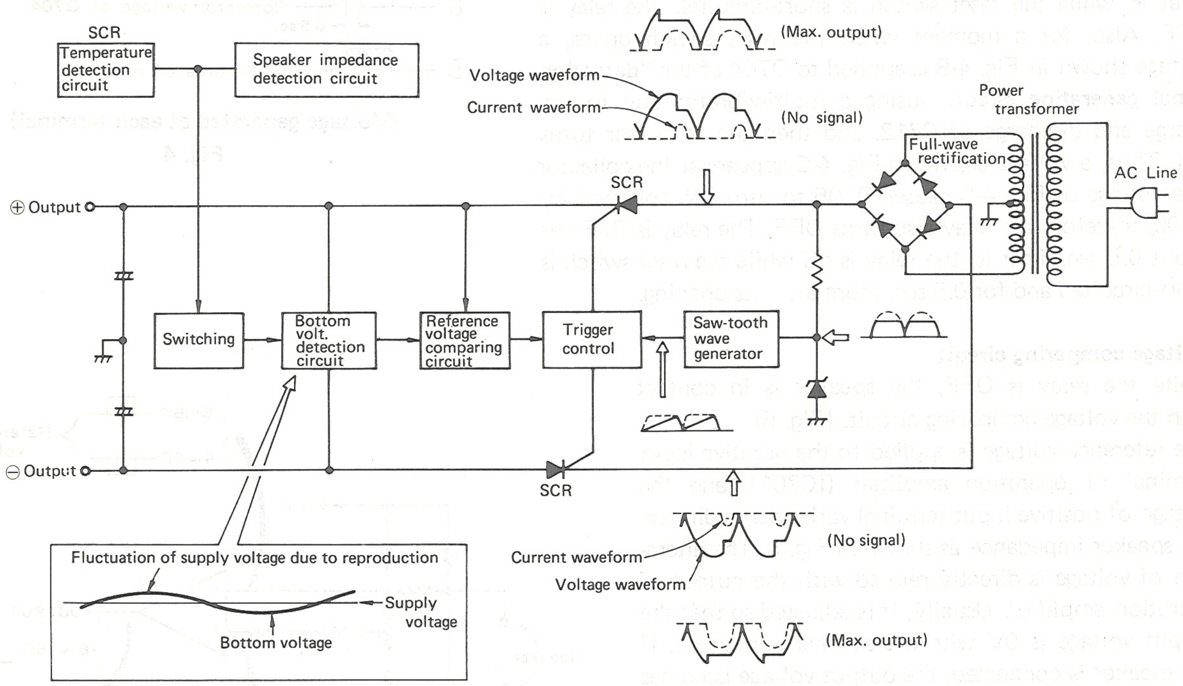
This unit is very compact as compared with conventional transformers or radiators, and yet ensures large output maintaining its thermal stability. This is because an excellent constant voltage power supply circuit having above-mentioned features is employed.

The block diagram of this circuit is shown in Fig. 2. The output of SCR (full-wave rectified voltage on the secondary side) is controlled by the control voltage obtained from the circuit that compares the output voltage and reference voltage. The bottom voltage detector circuit detects the lowest point of the voltage wave as the supply voltage fluctuates during reproduction of low-pitched sound at a large amplitude and gives the instruction to the gate trigger control circuit to make up for the fluctuation. Also, this circuit is connected to the speaker impedance detector circuit and the temperature detection circuit which keeps the temperature of radiator constant at all times by the use of heat sensing SCR.


Output voltage at 8Ω
Output voltage at 4Ω
Gate trigger current
Control voltage at 4Ω
Control voltage at 8Ω

As control voltage rises, phase narrows and output voltage decreases.

(Control voltage and output voltage)
Fig. 1


SCR
Temperature detection circuit
Speaker impedance detection circuit
(Max. output)
Voltage waveform
Current waveform
(No signal)
Power transformer
Full-wave rectification
AC Line
SCR
⊕ Output
Switching
Bottom volt. detection circuit
Reference voltage comparing circuit
Trigger control
Saw-tooth wave generator
⊖ Output
SCR
Fluctuation of supply voltage due to reproduction
Supply voltage
Bottom voltage
Current waveform
Voltage waveform
(No signal)
(Max. output)

(Block diagram of SCR constant voltage circuit)
Fig. 2

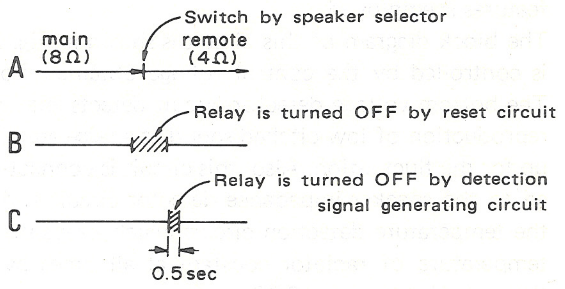
2. SPEAKER IMPEDANCE DETECTION CIRCUIT

This circuit detects the impedance of the speaker connected to the speaker terminal and serves to keep the operation of the unit in best conditions, controlling the constant voltage power supply circuit. It consists of a **"voltage comparing circuit"**, **"reset circuit"**, **"detection signal generating circuit"** and **"relay drive circuit"**.

- **Basic principles**

  Reset switch (S12) built into this switch is short-circuited only for a moment (Fig. 3-A) when speaker selector (S11) is operated. At the same time, the relay is turned OFF by the "**reset circuit**" (Fig. 3-B).

  Next, the reset switch opens on completion of speaker selector operation. The relay is kept OFF for 0.5 sec. more by the "**detecting signal generating circuit**" (Fig. 3-C). While the relay is OFF, the speaker connected to the speaker terminal is in contact with the "**voltage comparing circuit**" where the voltage is compared with the reference voltage in order to detect the type of speaker connected. Then the constant voltage circuit using thyristors is controlled so that the voltage is adjusted according to the type of speaker.


A
B
C
main (8Ω)
remote (4Ω)
Switch by speaker selector
Relay is turned OFF by reset circuit
Relay is turned OFF by detection signal generating circuit
0.5 sec

(Operation time of each circuit)

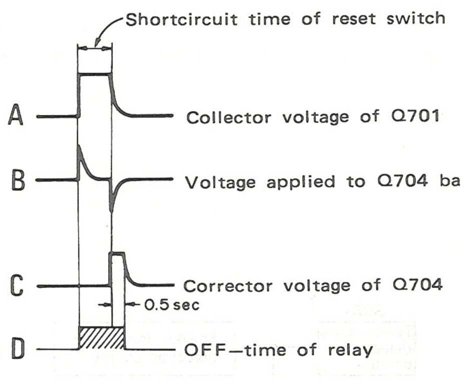
Fig. 3

- **Reset circuit and detection signal generating circuit**

  As already explained in the paragraph of basic principles, when reset switch (S12) is short-circuited, Q701 of reset circuit turns ON. Positive voltage is generated at the collector as shown in Fig. 4-A, causing Q705 of "**relay circuit**" to turn ON. (Usually, the base of Q705 is OFF at 0V.)

  When Q705 turns ON, the base of Q706 turns OFF at 0V causing the relay to turn OFF. (The emitter of Q706 is connected to pin (6) of IC603, and the pin voltage is usually 0V or a little higher.)

  That is, while the reset switch is short-circuited, the relay is OFF. Also, for a moment when the reset switch opens, a voltage shown in Fig. 4-B is applied to Q704 of the "**detection signal generating circuit**" using a multi-vibrator due to the charge and discharge of C712, and then the transistor turns ON. Thus, a voltage shown in Fig. 4-C appears at the collector. The voltage of Fig. 4-C causes Q705 to turn ON, followed by Q706, therefore the relay also turns OFF. The relay is OFF for about 0.5 sec. That is, the relay is off while the reset switch is short-circuited and for 0.5 sec. more after its opening.



(Voltage generated at each terminal)

Fig. 4

- **Voltage comparing circuit**

  While the relay is OFF, the speaker is in contact with the voltage comparing circuit. (Fig. 5)

  The reference voltage is applied to the negative input terminal of operation amplifier (IC701), and the voltage of positive input terminal varies depending on the speaker impedance as shown in Fig. 5. The alteration of voltage is directly related with the output of operation amplifier. Usually, it is adjusted so that the output voltage is 0V with 6Ω speaker connected. If 4Ω speaker is connected, the output voltage becomes negative. And it is positive with 8Ω speaker connected. This voltage is applied to switching transistor Q409 of the constant voltage power supply circuit. Incidentally, negative voltage will be generated with 8Ω connected to Rch and 4Ω to Lch.

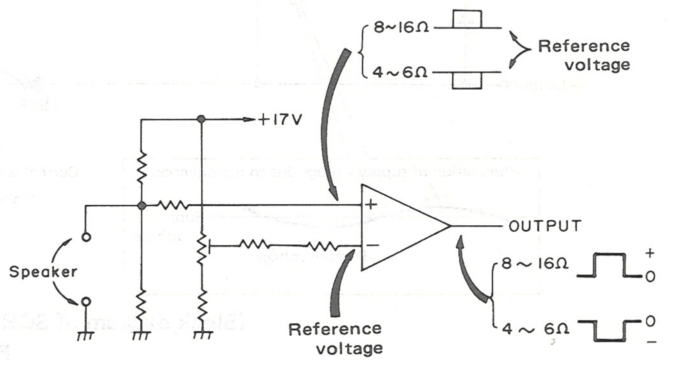
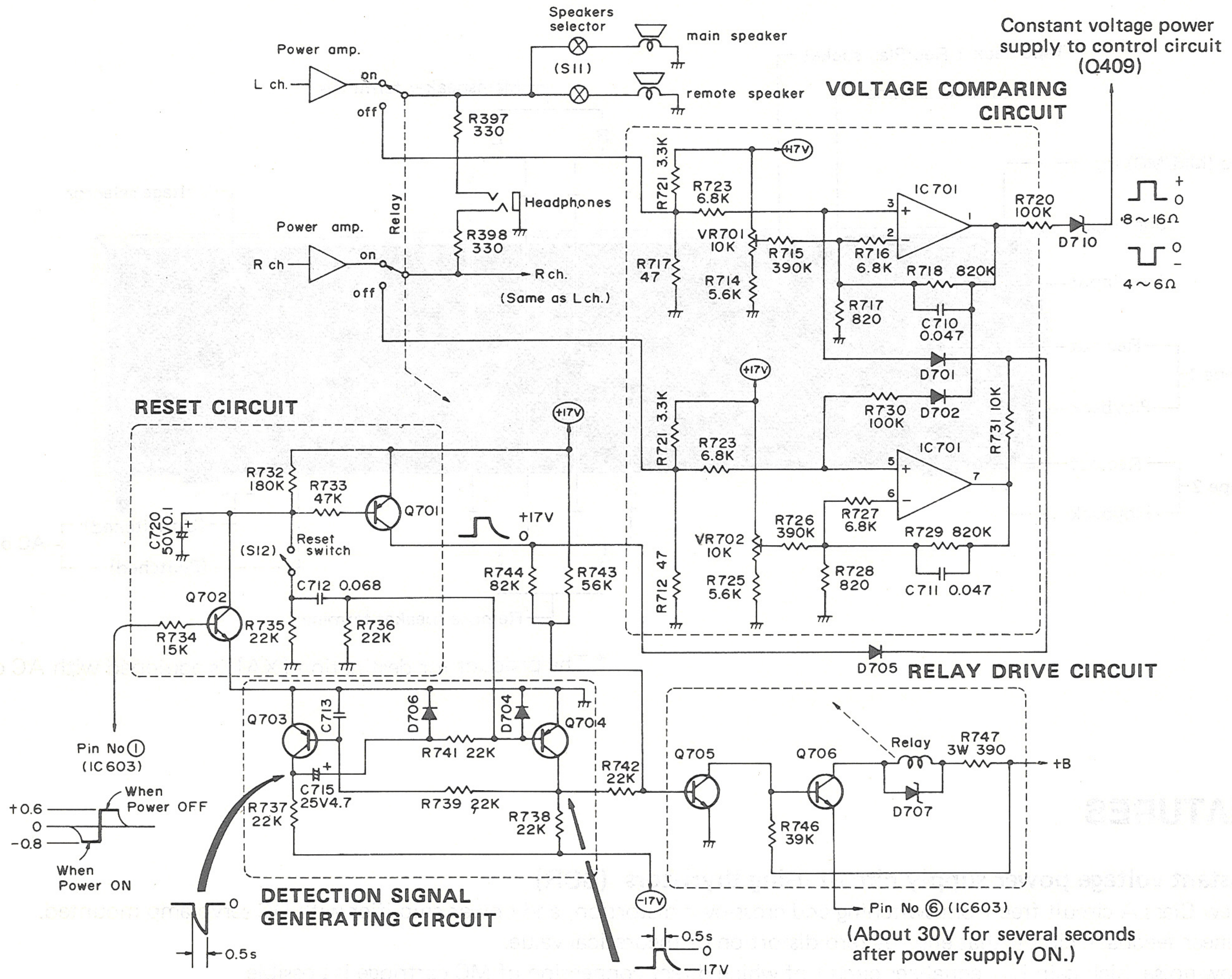

8～16Ω
4～6Ω
Reference voltage
+17V
Speaker
OUTPUT
8～16Ω
+
0
4～6Ω
0
−
Reference voltage

Fig. 5

- **Voltage comparing circuit and reset circuit**

  The operation amplifier of "**voltage comparing circuit**" holds the detected impedance 8Ω or 4Ω. **Therefore, if a speaker of different impedance is connected, it is necessary to turn off the power supply or switch the speaker selector and to operate the reset circuit. That is, the relay must be turned OFF.** Q702 of the "**reset circuit**" is connected to pin (1) of IC603. Positive voltage is generated at the pin for a moment when the power supply is turned OFF.

  Then Q702 turns ON, causing the "**reset circuit**" to operate for a moment and the "**voltage comparing circuit**" to operate for a moment for impedance detection.


Speakers selector
main speaker
(S11)
remote speaker
Power amp.
L ch.
on
off
R397 330
Relay
Headphones
R398 330
Power amp.
R ch
on
off
R ch.
(Same as L ch.)
Constant voltage power supply to control circuit (Q409)
VOLTAGE COMPARING CIRCUIT
+17V
R721 3.3K
R723 6.8K
IC701
R720 100K
D710
8～16Ω
4～6Ω
VR701 10K
R715 390K
R716 6.8K
R718 820K
R717 47
R714 5.6K
R717 820
C710 0.047
D701
+17V
R730 100K
D702
R731 10K
R721 3.3K
R723 6.8K
IC701
R726 390K
R727 6.8K
R729 820K
VR702 10K
R712 47
R725 5.6K
R728 820
C711 0.047
D705
RELAY DRIVE CIRCUIT
RESET CIRCUIT
+17V
R732 180K
R733 47K
Q701
C720 50V0.1
Reset switch
(S12)
+17V
0
R744 82K
R743 56K
C712 0.068
Q702
R734 15K
R735 22K
R736 22K
Pin No① (IC603)
Q703
C713
D706
D704
Q704
R741 22K
R742 22K
Q705
Q706
Relay
R747 3W 390
+B
D707
C715 25V4.7
R739 22K
R737 22K
R738 22K
R746 39K
+0.6
0
−0.8
When Power OFF
When Power ON
0
0.5s
DETECTION SIGNAL GENERATING CIRCUIT
−17V
0.5s
0
−17V
Pin No ⑥ (IC603)
(About 30V for several seconds after power supply ON.)

(Speaker impedance detection circuit))

Fig. 6

3. DESCRIPTION OF MUTING/RELAY DRIVE IC (SVITA7317P)

- **Functions**
  1. Click noise prevention during power ON/OFF.
  2. Protection of speakers and power transistors from breakdown.

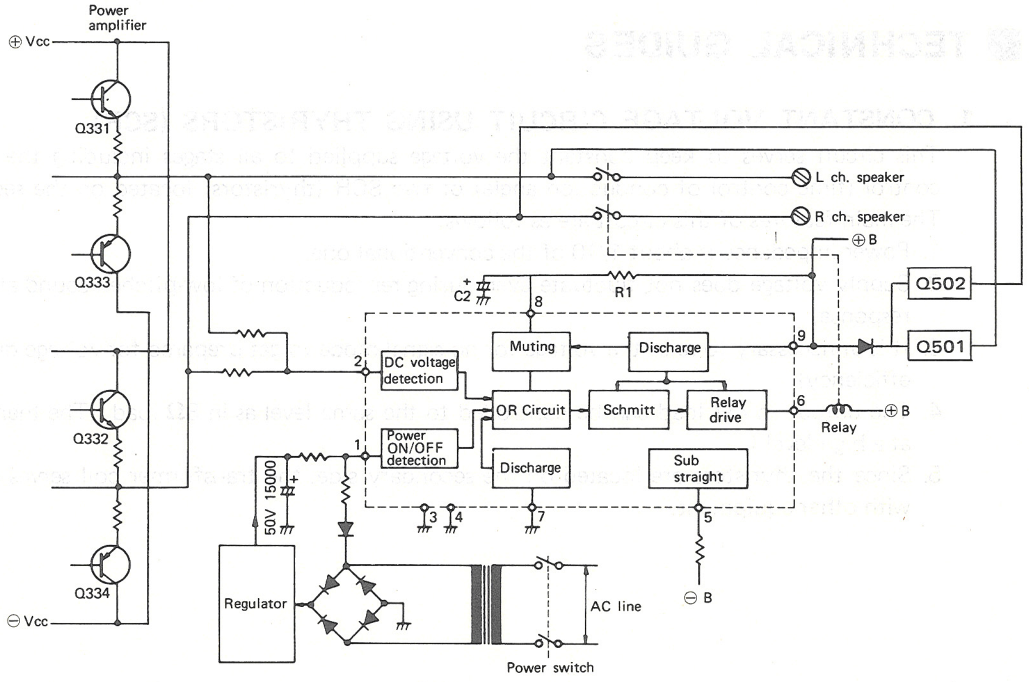
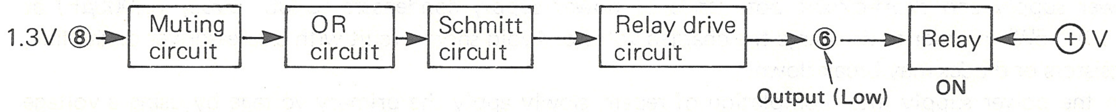

Power amplifier
⊕Vcc
Q331
Q333
Q332
Q334
⊖Vcc
L ch. speaker
R ch. speaker
⊕B
C2
8
R1
Q502
Q501
2
DC voltage detection
Muting
Discharge
9
OR Circuit
Schmitt
Relay drive
6
⊕B
Relay
1
Power ON/OFF detection
Discharge
Sub straight
50V 15000
3
4
7
5
⊖B
Regulator
AC line
Power switch

Fig. 7

- **Operation**

1-1. Relay turns ON about 5 seconds after power ON. Therefore, no click noise is produced from the speaker.



- About 5 seconds after power ON, about 1.3V is applied to terminal (8). This voltage is applied to "OR circuit", turning the "Schmitt circuit" ON, "Relay drive circuit" ON, and the voltage of terminal (6) to "Low, then the relay turns ON.
  At that time, —0.8V is applied to terminal (1), causing "power ON/OFF detection circuit" to turn OFF, and the voltage (1.3V) to be applied to the "Schmitt circuit".
  (Note) Voltage of terminal (8) is determined by R1 and C2.

(Complete charge characteristic curve)

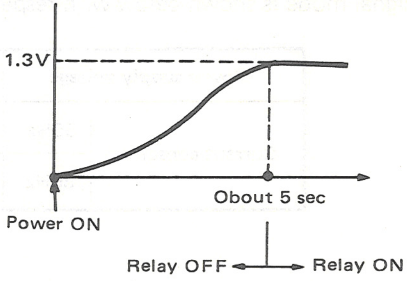
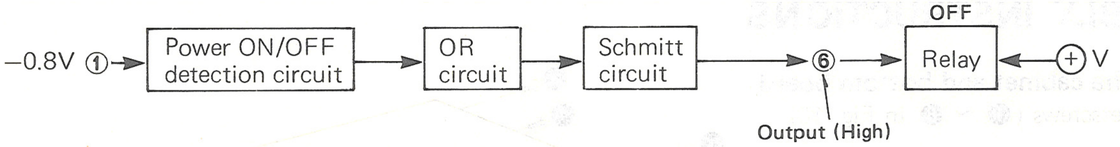
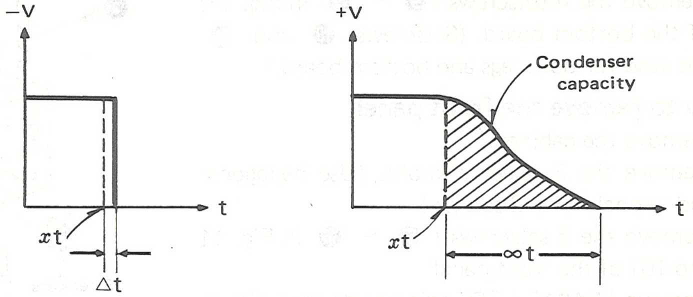


Fig. 8

1-2. No click noise is produced from the speaker when power supply is turned OFF.



- When power supply is turned OFF, the negative (—) voltage drops faster than the positive (+) voltage. At that instant, the positive (+) voltage is applied to terminal (1), turning the "Power ON/OFF detection circuit" ON, "OR circuit" OFF, "Schmitt circuit" ON, "Relay drive circuit" OFF, and the voltage of terminal (6) to "High", then the relay turns OFF.



(Voltage drop time comparison)

Fig. 9

xt: power switch OFF-time
Δt: negative (—) voltage drop time
∞t: positive (+) voltage drop time

$\Delta t < \infty t$

1-3. **Difference in drop speed between negative and positive voltages**

- No condenser is located on the negative (—) side, while a condenser (50V, 15000μF) is on the positive (+) side. Therefore, the voltage drop speed is faster on the negative (—) side.

2-1. **It protects the speakers when main amplifier becomes defective.**

When DC voltage is applied to terminal (2) due to main amplifier trouble, the "DC detection circuit" turns ON, "OR circuit" turns OFF, "Schmitt circuit" ON, "Relay drive circuit" OFF, and the voltage of terminal (6) to "High", then the relay turns OFF, thus protecting the speakers.

BEFORE REPAIR AND ADJUSTMENT

Turn off the power supply and short-circuit both ends of power supply condensers (C408, C409, 15,000μF) at resistance (about 10Ω, 5W) in order to discharge the charged voltage. Avoid short-circuit with a screwdriver or the like, otherwise the transistors or diodes may break down.

Before turning on the power supply after completion of repair, slowly apply the primary voltage by using a voltage regulator to make sure that the current consumed is free of abnormality. The current consumed at 60Hz/50Hz in no-signal mode is shown below with respect to supply voltage 110V/120V/220V/240V.

Power supply voltage		AC 110V	AC 120V	AC 220V	AC 240V
Current consumed	50Hz	350～700mA	330～680mA	180～360mA	170～340mA
	60Hz	340～690mA	320～650mA	170～350mA	150～310mA

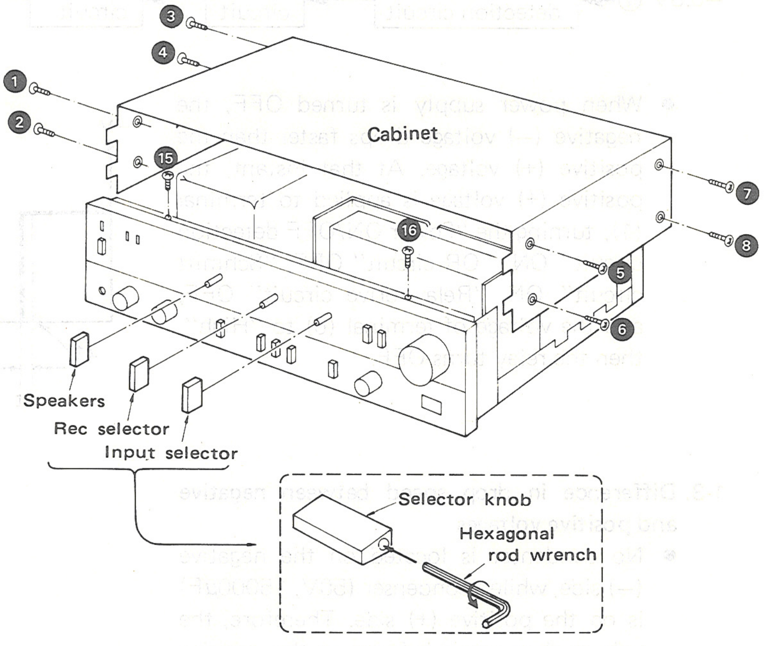
DISASSEMBLY INSTRUCTIONS

1. How to remove the cabinet and bottom board

1. Remove the 8 setscrews (❶ ~ ❽ in Fig. 10) of the cabinet.
2. Remove the 4 setscrews (❾ ~ ⓬ in Fig. 11) of the bottom board. (Setscrews ❿ and ⓫ are used for both legs and bottom board.)

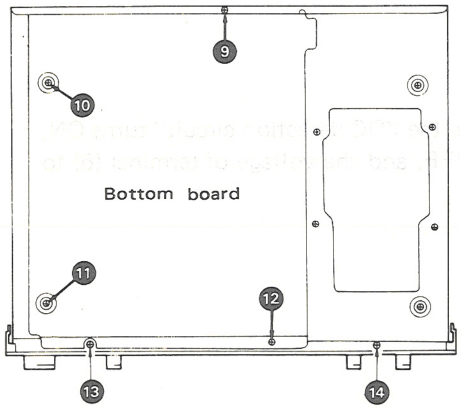
2. How to remove the front panel

1. Remove the cabinet.
2. Remove the 3 selector knobs. (Use hexagonal rod wrench for M3 screws.)
3. Remove the 5 setscrews (⓬ ~ ⓰ in Fig. 11 and 10) of the front panel.
4. Remove MM/MC LED indicator printed circuit board and via tone/DC LED indicator printed circuit board by releasing the lugs. (Fig. 12)
5. Draw the front panel from the chassis with care not to scratch it, holding the right and left edges.



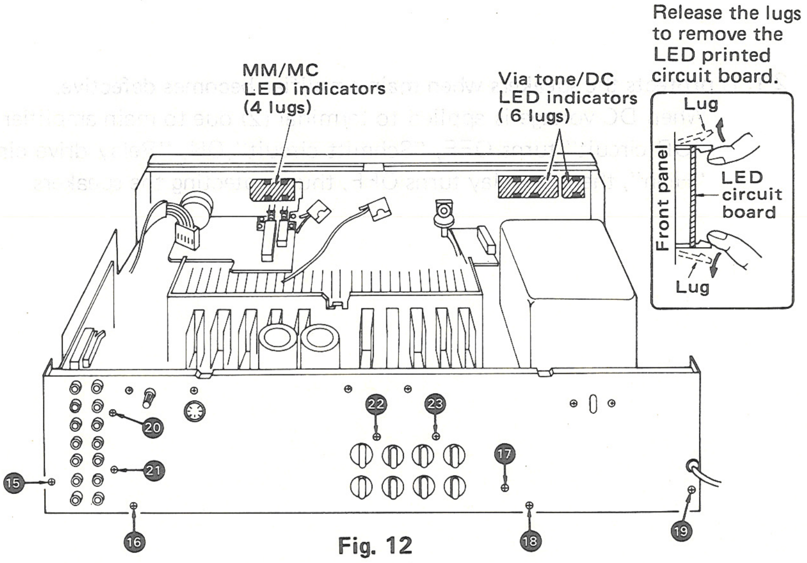
❸
❹
❶
❷
Cabinet
⓯
⓰
❼
❽
❺
❻
Speakers
Rec selector
Input selector
Selector knob
Hexagonal rod wrench

Fig. 10



❾
❿
Bottom board
⓫
⓬
⓭
⓮

Fig. 11

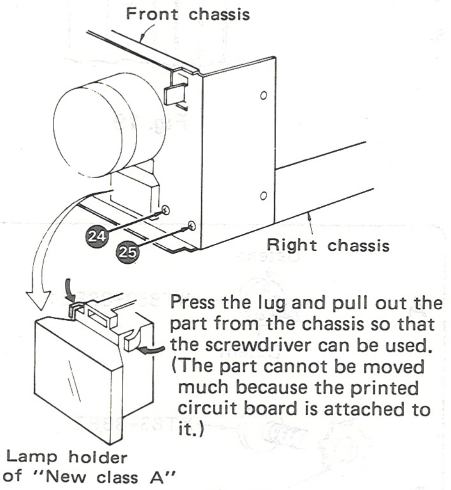


MM/MC LED indicators (4 lugs)
Via tone/DC LED indicators (6 lugs)
Release the lugs to remove the LED printed circuit board.
Lug
Front panel
LED circuit board
Lug
⓴
㉑
㉒
㉓
⓱
⓯
⓰
⓲
⓳

Fig. 12

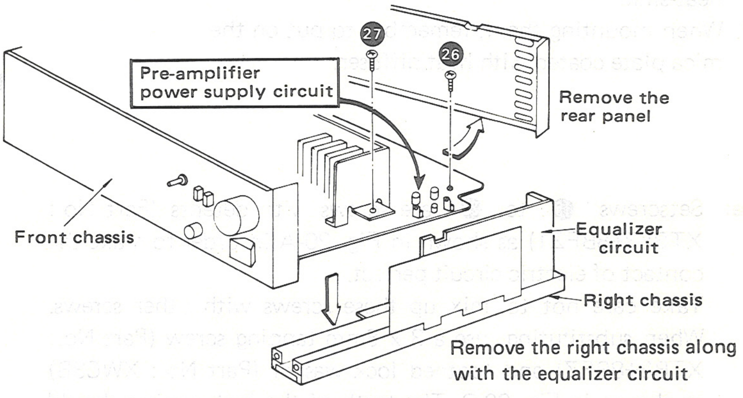
3. Replacement of parts of pre-amplifier power supply circuit

1. When replaicng the parts of pre-amplifier power supply circuit, remove the front panel and bottom board in case it is difficult to use a soldering iron.
2. Remove the 5 setscrews (⑮ ~ ⑲ in Fig. 12) of rear panel, 2 setscrews (⑳ , ㉑ in Fig. 12) of input terminal plate, and 2 setscrews (㉒ , ㉓ in Fig. 12) of speaker terminal plate.
3. Remove the 2 setscrews (㉔ , ㉕ in Fig. 13) of right chassis.
4. Remove the setscrews (㉖ , ㉗ in Fig. 14) of printed circuit board and heat sink.
5. Remove the rear panel and right chassis as shown in Fig. 14.


Front chassis
㉔
㉕
Right chassis
Lamp holder of "New class A"

Press the lug and pull out the part from the chassis so that the screwdriver can be used. (The part cannot be moved much because the printed circuit board is attached to it.)

Fig. 13


Pre-amplifier power supply circuit
㉗
㉖
Remove the rear panel
Front chassis
Equalizer circuit
Right chassis

Remove the right chassis along with the equalizer circuit

Fig. 14

4. How to remove the power transistor

1. Unsolder the power transistor as shown in Fig. 16.
2. Remove the 5 setscrews (㉗ ~ ㉛ in Fig. 15 and 17) of heat-sink and then lift the heat-sink along with the power transistor.
3. When installing the power transistor, apply heat diffusing agent (silicon powder, etc.) to both sides of the mica plate, and secure it on the heat-sink with setscrews. Next, secure the heat-sink on the chassis and then solder the power transistor.

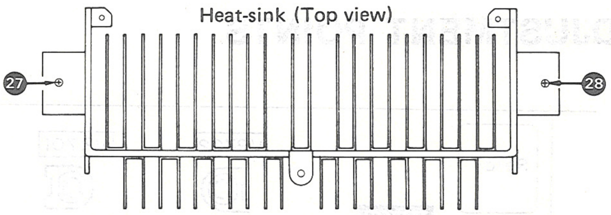
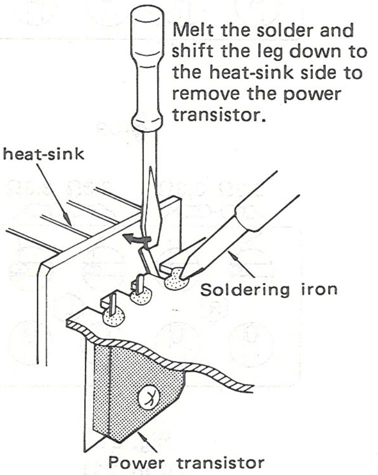

Heat-sink (Top view)
㉗
㉘

Fig. 15


heat-sink
Soldering iron
Power transistor

Melt the solder and shift the leg down to the heat-sink side to remove the power transistor.

Fig. 16

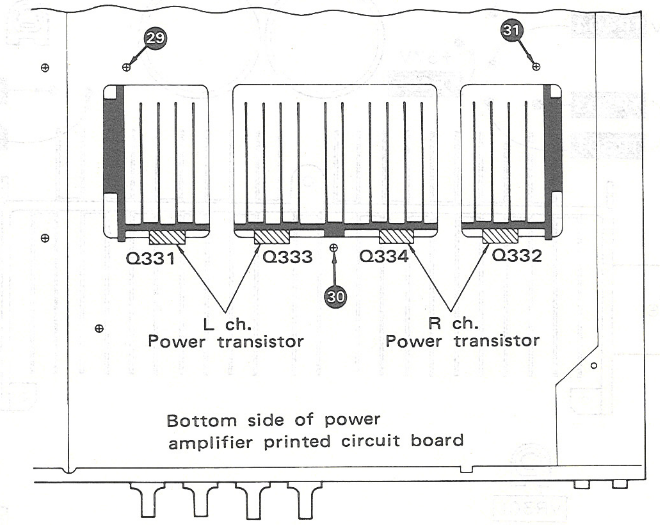

㉙
㉛
Q331
Q333
Q334
Q332
㉚
L ch. Power transistor
R ch. Power transistor
Bottom side of power amplifier printed circuit board

Fig. 17

5. How to remove constant voltage SCR (D405, D407)

1. Remove the cabinet and bottom board.
2. Remove the setscrew ❶ (Fig. 18) used to secure the heat-sink of constant voltage SCR.
3. Remove the setscrew ❷ (Fig. 19) from the back of printed circuit board.
4. Unsolder D405 and D407.
5. Remove them along with heat-sink (Fig. 18).
6. Remove the setscrew ❸ (Fig. 18) of press-board which presses D405 and D407 against the heat-sink.
7. When mounting them, remember to put on the mica plate coated with heat diffuser.

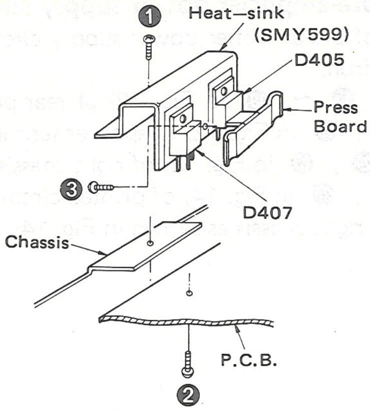

❶
Heat–sink
(SMY599)
D405
Press
Board
❸
D407
Chassis
P.C.B.
❷

Fig. 18

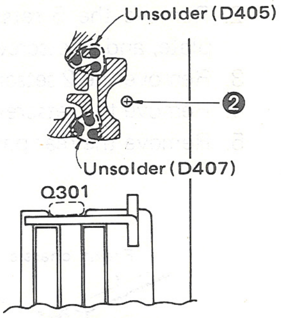

Unsolder (D405)
❷
Unsolder (D407)
Q301

Fig. 19

Note: Setscrews ⑮ to ㉓ are screws with detents (Part No.: XTBS3+8BFZ1) as shown in Fig. 20-A in order to make the contact of electric circuit perfect.
Take care not to mix up these screws with other screws. When substituting, use a 3 x 8mm tapping screw (Part No.: XTB3+8BFZ) and toothed lock washer (Part No.: XWC3B) as shown in Fig. 20-B. The teeth of the lock washer should be positioned on the chassis side.

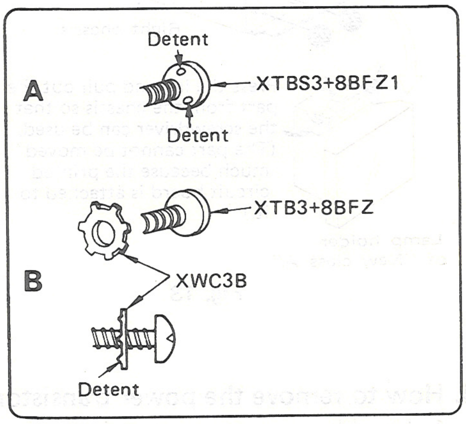
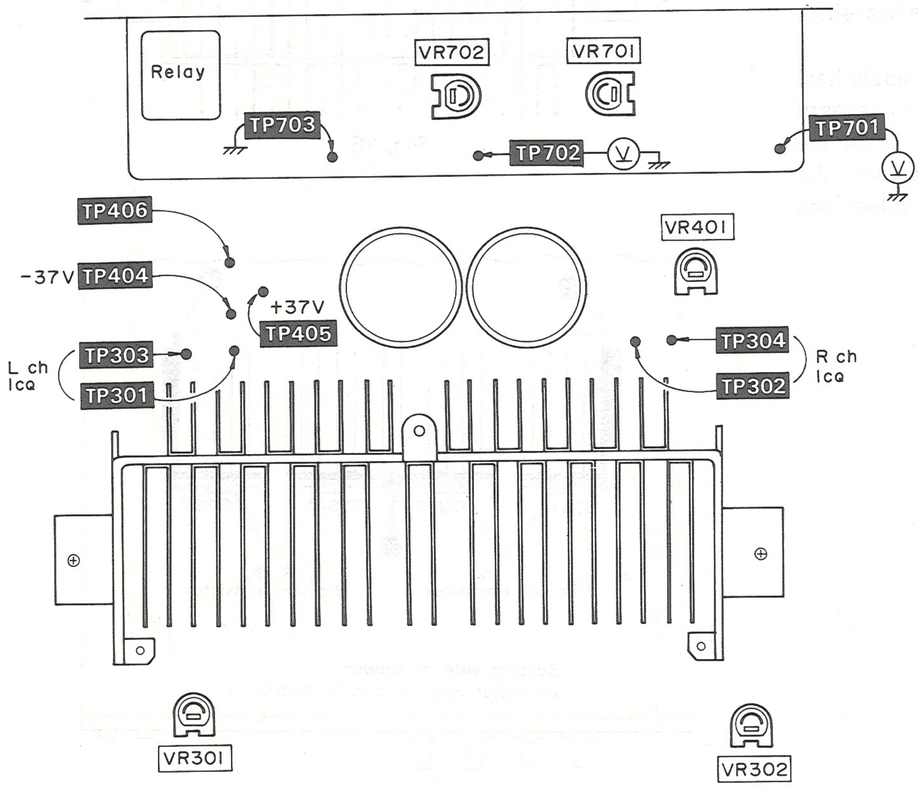

Detent
A
XTBS3+8BFZ1
Detent
XTB3+8BFZ
B
XWC3B
Detent

Fig. 20

ADJUSTMENT POINTS


Relay
VR702
VR701
TP703
TP702
TP701
TP406
-37V
TP404
+37V
TP405
VR401
L ch
Icq
TP303
TP301
TP304
TP302
R ch
Icq
VR301
VR302

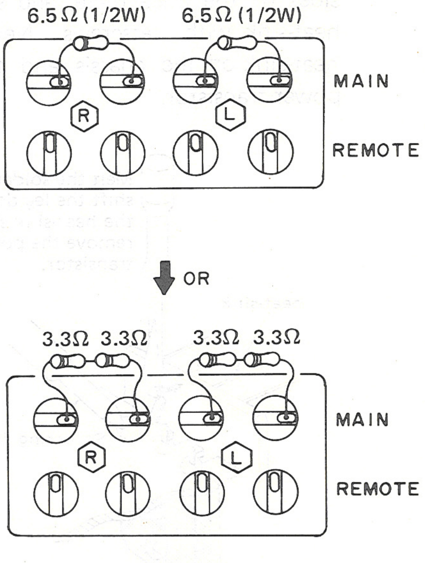

6.5Ω (1/2W)
6.5Ω (1/2W)
MAIN
R
L
REMOTE
OR
3.3Ω
3.3Ω
3.3Ω
3.3Ω
MAIN
R
L
REMOTE

Fig. 21
(Abb. 21)

MEASUREMENTS AND ADJUSTMENTS English

● Setting and instruments used

1. Operation switch . . . . straight DC
2. Speaker selector . . . . main
3. Sound volume . . . . 0 (minimum)
4. DC voltmeter (able to measure 4mV)
5. Instruments for circuit operation check (AC voltmeter, 1kHz oscillator, 8Ω load, 5W 0.33Ω resistor, 1/2W 6.5Ω or 3.3Ω & 3.3Ω ±5%)

<table>
<tr><th>Item</th><th>Connection of DC voltmeter</th><th>VR adjusted</th><th>Adjustment</th></tr>
<tr><td>Supply voltage adjustment & check</td><td>Connect voltmeter to TP405 (+) and TP406 (−).
(TP406 serves as an ground point.)
* Set the speaker selector to "main" when measuring the voltage.
* If power supply of the set is ON, changing the load impedance will not cause alteration of supply voltage.
So, turn off power supply or shift the speaker selector to other position.
* With speaker selector set at main and remote, the voltage at 4 ~ 6Ω is indicated.</td><td>VR401</td><td>① Connect 4Ω load to speaker terminal.
② Adjust VR401 so that the voltage is +37V.
③ Load resistances connected to speaker terminal and output voltage at each test point are shown below.
<table>
<tr><th>Load</th><th>Test point</th><th>Specification</th></tr>
<tr><td>4~6Ω</td><td>TP405</td><td>+36.5 ~ +37.5V</td></tr>
<tr><td></td><td>TP404</td><td>−36.7 ~ −37.7V</td></tr>
<tr><td>8~16Ω</td><td>TP405</td><td>+45.5 ~ +47.5V</td></tr>
<tr><td></td><td>TP404</td><td>−45.5 ~ −47.5V</td></tr>
</table></td></tr>
<tr><td>Adjustment of I_{CQ}</td><td>L channel
Connect voltmeter to TP301 (−) and TP303 (+)</td><td>VR301</td><td>① Completely turn VR301 and VR302 anticlockwise beforehand.
② Adjust VR301 (L channel) and VR302 (R channel) so that the voltage is 2mV, about 10 min. after power supply ON.</td></tr>
<tr><td></td><td>R channel
Connect voltmeter to TP302 (−) and TP304 (+)</td><td>VR302</td><td></td></tr>
</table>

● Adjustment of load impedance detection circuit

① Connect a load with 6.5Ω (1/2W carbon resistor) or series-connected 3.3Ω and 3.3Ω (1/2W, ±5%) to the "main" speaker terminal. (Fig. 21)

② Connect a DC voltmeter between TP701 and chassis, TP702 and chassis.

③ Connect TP703 and chassis.

④ Completely turn VR701 clockwise.

⑤ Adjust VR702 so that the voltage of TP702 is −0.1V.

⑥ Adjust VR701 so that the voltage of TP701 is 0V.

● Check points

1. DC balance

① Make the sound volume minimum.

② Connect DC voltmeter and 8Ω load to speaker terminal.

③ Make sure that output voltage is within ±30mV.

2. Protection circuit

① Connect AC voltmeter and 8Ω load to speaker terminal.

② Make the sound volume maximum.

③ Apply 1 kHz 100mV signal to "TUNER" terminal.

④ Turn on power supply and make sure that output is delivered about 4 ~ 8 sec. later.

⑤ Apply ±150mV DC to "TUNER" terminal of L and R channels in order.

⑥ Make sure that relay in the set turns OFF immediately when DC is applied.

* **If protection relay turns OFF due to overload, the circuit and load will not restore their normal conditions unless power supply is once turned OFF and again turned ON.**

3. Overload detection circuit

① Connect 8Ω load to "main" speaker terminal and 5W 0.33Ω resistance to "remote" speaker terminal.

② Apply 1kHz 40mV signal to "TUNER" terminal.

③ Make the sound volume maximum.

④ With speaker selector set at main and remote, make sure that relay in the set is OFF and no output is delivered.

MESSUNGEN UND JUSTIERUNGEN ——Deutsch

- **Einstellungen und verwendete Instrumente**

1. Betriebsschalter . . . . "straight DC"
2. Lautsprecher-Wahlschalter . . . . "main"
3. Lautstärke . . . . 0 (Minimum)
4. Gleichstrom-Voltmeter (zum Messen von 4mV geeignet)
5. Instrumente für die Schaltungsbetrieb-Prüfung (Wechselstrom-Voltmeter, 1kHz-Oszillator, 8Ω-Belastung, 5W 0,33Ω-Widerstand, 1/2W 6,5Ω oder 3,3Ω & 3,3Ω ±5%)

<table>
<tr><th>Gegenstand</th><th>Anschluß des Voltmeters</th><th>Zu justierender Drehwiderstand</th><th>Justierung</th></tr>
<tr><td>Justierung & Überprüfung der Versorgungsspannung</td><td>Voltmeter an TP405 (+) und TP406 (–) anschließen. (TP406 dient als Erdungspunkt.)
* Beim Messen der Spannung den Lautsprecher-Wahlschalter auf "main" einstellen.
* Wenn die Stromzufuhr des Gerätes eingeschaltet ist, verursacht die Änderung der Belastungsimpedanz keine Veränderung der Versorgungsspannung. Daher Netzschalter ausschalten oder Lautsprecher-Wahlschalter in eine andere Position stellen.
* Bei auf "main and remote" eingestelltem Lautsprecher-Wahlschalter wird die Spannung bei 4 ~ 6Ω angezeigt.</td><td>VR401</td><td>① Eine Last von 4Ω an den Lautsprecheranschluß anschließen.
② VR401 so justieren, daß die Spannung +37V beträgt.
③ Die an den Lautsprecheranschluß angeschlossenen Belastungswiderstände und die Ausgangsspannung an jedem Prüfpunkt sind nachstehend angegeben.
<table>
<tr><th>Belastung</th><th>Prüfpunkt</th><th>Sollwert</th></tr>
<tr><td rowspan="2">4~6Ω</td><td>TP405</td><td>+36.5 ~ +37.5V</td></tr>
<tr><td>TP404</td><td>+36.7~–37.7V</td></tr>
<tr><td rowspan="2">8~16Ω</td><td>TP405</td><td>+45.5 ~ +47.5V</td></tr>
<tr><td>TP404</td><td>–45.5 ~ –47.5V</td></tr>
</table>
</td></tr>
<tr><td rowspan="2">Justierung von I_{CQ}</td><td>Linker Kanal
Voltmeter an TP301 (–) und TP303 (+) anschließen.</td><td>VR301</td><td rowspan="2">① VR301 und VR302 vorher bis zum Anschlag entgegen dem Uhrzeigersinn drehen.
② VR301 (linker Kanal) und VR302 (rechter Kanal) so justieren, daß die Spannung, ca. 10 Minuten nach dem Einschalten der Stromzuführ, 2mV beträgt.</td></tr>
<tr><td>Rechter Kanal
Voltmeter an TP302 (–) und TP304 (+) anschließen.</td><td>VR302</td></tr>
</table>

Justierung der Belastungsimpedanz-Detektorschaltung

① Eine Last mit 6,5Ω (1/2W Kohlewiderstand) oder in Serie geschalteten 3,3Ω und 3,3Ω (1/2W, ±5%) an den "main" Lautsprecheranschluß anschließen. (Abb. 21)
② Ein Gleichstrom-Voltmeter zwischen TP701 und dem Chassis, TP702 und dem Chassis, anschließen.
③ TP703 mit dem Chassis verbinden.
④ VR701 bis zum Anschlag entgegen dem Uhrzeigersinn drehen.
⑤ VR702 so justieren, daß die Spannung an TP702 –0,1V beträgt.
⑥ VR701 so justieren,daß die Spannung an TP701 0V beträgt.

Prüfpunkte

1. Gleichstrom-Balance

① Den Lautstärkeregler ganz zudrehen.
② Das Gleichstrom-Voltmeter und eine 8Ω-Last an den Lautsprecheranschluß anschließen.
③ Überprüfen, daß die Ausgangsspannung innerhalb ±30mV liegt.

2. Schutzschaltung

① Das Wechselstrom-Voltmeter und eine 8Ω-Last an den Lautsprecheranschluß anschließen.
② Den Lautstärkeregler ganz aufdrehen.
③ Ein Signal von 1kHz, 100mV an den "TUNER"-Anschluß anlegen.
④ Den Netzschalter einschalten und überprüfen, daß die Ausgangsleistung ca. 4 ~ 8 sec. später ausgegeben wird.
⑤ ±150mV Gleichstrom an den "TUNER"-Anschluß des linken Kanals und danach des rechten Kanals anlegen.
⑥ Überprüfen, daß das Relais im Gerät sofort ausgeschaltet wird, wenn Gleichstrom angelegt wird.

* **Nachdem das Schutzrelais aufgrund von Überbelastung ausgeschaltet wurde, muß der Netzschalter einmal aus- und wieder eingeschaltet werden, damit die Schaltung und die Last wieder in ihren normalen Zustand versetzt werden.**

3. Überbelastungs-Detektorschaltung

① Eine 8Ω-Last an den "main"-Lautsprecheranschluß und einen 5W, 0,33Ω-Widerstand an den "remote"-Lautsprecheranschluß anschließen.
② Ein Signal von 1kHz, 40mV an den "TUNER"-Anschluß anlegen.
③ Den Lautstärkeregler ganz aufdrehen.
④ Mit auf "main and remote" eingestelltem Lautsprecher-Wahlschalter überprüfen, daß das Relais ausgeschaltet ist, und keine Ausgangsleistung ausgegeben wird.

MESURAGES ET RÉGLAGES — Français

● Réglages et appareils utilisés

1. Commutateur de commande . . . . . C.C. normal
2. Sélecteur de haut-parleurs . . . . principal (main)
3. Volume sonore . . . . 0 (minimum)
4. Voltmètre à C.C. (capable de mesurer 4mV)
5. Appareils pour la vérification du fonctionnement du circuit. (Voltmètre à C.A., oscillateur de 1kHz, charge de 8Ω, résistance de 5W 0,33Ω, 1/2W 6,5Ω ou 3,3Ω et 3,3Ω ±5%)

Article	Branchement du voltmètre à C.C.	VR à régler	Réglage
Vérification et réglage de la tension d'alimentation	Brancher le voltmètre à TP405 (+) et TP406 (−). (TP406 sert en tant que prise de terre.) * Régler le sélecteur de haut-parleurs sur "main" (principal) lorsqu'on mesure la tension. * Si la tension d'alimentation de l'appareil est en marche, le changement d'impédance de charge ne provoquera pas d'altération de la tension d'alimentation. Aussi, couper la tension d'alimentation ou décaler le sélecteur de haut-parleurs sur une autre position. * Avec le sélecteur de haut-parleurs réglé sur "main" (principal) et "remote" (auxiliaire), une tension de 4 ~ 6Ω est indiquée.	VR401	① Mettre en circuit une charge de 4Ω à la prise de haut-parleurs. ② Ajuster VR401 de façon à ce que la tension soit de +37V. ③ Les résistances de charge raccordées à la tension à chaque point mesure sont montrées ci-dessous.
Réglage de I_{CQ}	Canal de gauche Brancher le voltmètre à TP301 (−) et TP303 (+).	VR301	① Tourner préalablement complètement dans le sens inverse des aiguilles d'une montre VR301 et VR302. ② Régler VR301 (canal de gauche) et VR302 (canal de droite) de façon à ce que la tension soit de 2mV, environ 10 minutes après la mise en marche de la tension d'alimentation.
	Canal de droite Brancher le voltmètre à TP302 (−) et à TP304 (+).	VR302	

Charge	Point de mesure	Spécification
4~6Ω	TP405	+36.5 ~ +37.5V
	TP404	−36.7 ~ −37.7V
8~16Ω	TP405	+45.5 ~ +47.5V
	TP404	−45.5 ~ −47.5V

● Réglage du circuit de détection d'impédance de charge

① Mettre en circuit une charge avec 6,5Ω (résistance à couche de carbone de 1/2W) ou un montage en série de 3,3Ω et 3,3Ω (1/2W, ±5%) à la prise du haut-parleur "principal". (Fig. 21)
② Brancher un voltmètre à C.C. entre TP701 et le châssis, TP702 et le châssis.
③ Connecter TP703 et le châssis.
④ Tourner complètement VR701 dans le sens des aiguilles d'une montre.
⑤ Régler VR702 de façon à ce que la tension de TP702 soit de −0,1V.
⑥ Régler VR701 de façon à ce que la tension de TP701 soit de 0V.

● Points de vérification

1. Compensation du C.C.

① Diminuer le volume sonore au minimum.
② Brancher le voltmètre à C.C. et une charge de 8Ω à la prise de haut-parleurs.
③ S'assurer que la tension de sortie est en deçà de ±30mV.

2. Circuit de protection

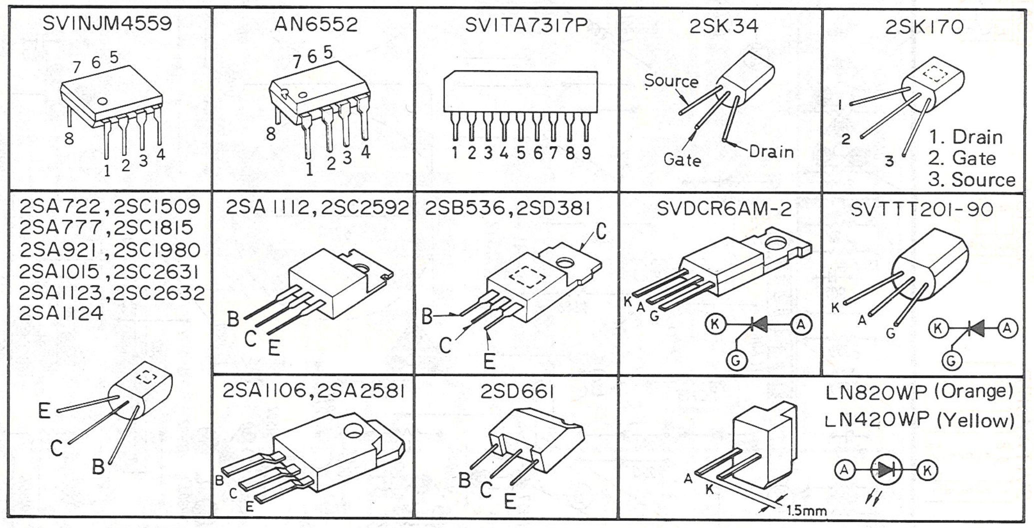
① Brancher le voltmètre à C.A. et une charge de 8Ω à la prise de haut-parleurs.
② Augmenter le volume sonore au maximum.
③ Appliquer un signal de 1kHz 100mV à la borne du "TUNER".
④ Mettre en marche l'alimentation secteur et s'assurer que la sortie livrée soit par la suite d'à peu près 4 ~ 8 sec.
⑤ Appliquer dans l'ordre ±150mV C.C. à la borne du "TUNER" des canaux gauche et droit.
⑥ S'assurer que le relais dans l'appareil soit immédiatement mis hors circuit lorsque le C.C. est appliqué.

*** Si le relais de protection est mis hors circuit à cause d'une surcharge, le circuit et la charge ne récupéreront pas leurs conditions normales à moins que l'alimentation secteur soit une fois mise hors circuit et remise à nouveau en marche.**

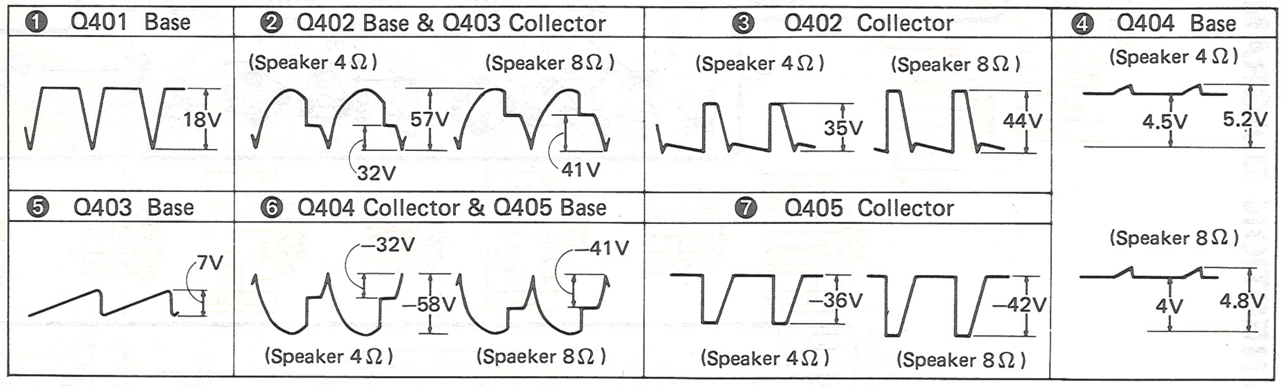
3. Circuit de détection d'une surcharge

① Connecter une charge de 8Ω à la prise de haut-parleurs "principale" ("main") et une résistance de 5W 0,33Ω à la prise de haut-parleurs "auxiliaire" ("remote").
② Appliquer un signal de 1kHz 40mV à la borne du "TUNER".
③ Augmenter le volume sonore au maximum.
④ Avec le sélecteur de haut-parleurs réglé sur "main" (principal) et sur "remote" (auxiliaire), s'assurer que le relais dans l'appareil soit mis hors circuit et qu'aucune sortie ne soit livrée.

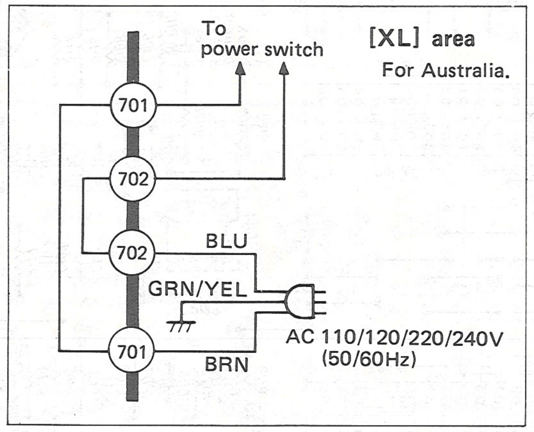
● Terminal guide of transistors, diodes and IC's

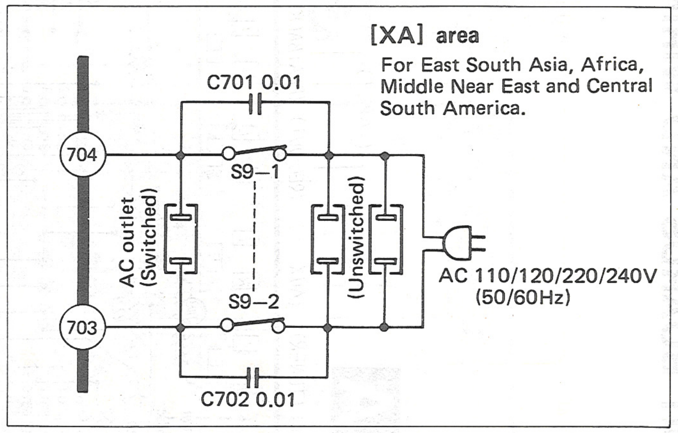

SVINJM4559
7 6 5
8
1 2 3 4
AN6552
7 6 5
8
1 2 3 4
SVITA7317P
1 2 3 4 5 6 7 8 9
2SK34
Source
Gate
Drain
2SK170
1
2
3
1. Drain
2. Gate
3. Source
2SA722, 2SC1509
2SA777, 2SC1815
2SA921, 2SC1980
2SA1015, 2SC2631
2SA1123, 2SC2632
2SA1124
E
C
B
2SA1112, 2SC2592
B
C
E
2SB536, 2SD381
C
B
C
E
SVDCR6AM-2
K A G
K
A
G
SVTTT201-90
K
A
G
K
A
G
2SA1106, 2SA2581
B
C
E
2SD661
B
C
E
LN820WP (Orange)
LN420WP (Yellow)
A
K
1.5mm
A
K

● Waveform of SCR constant voltage circuit

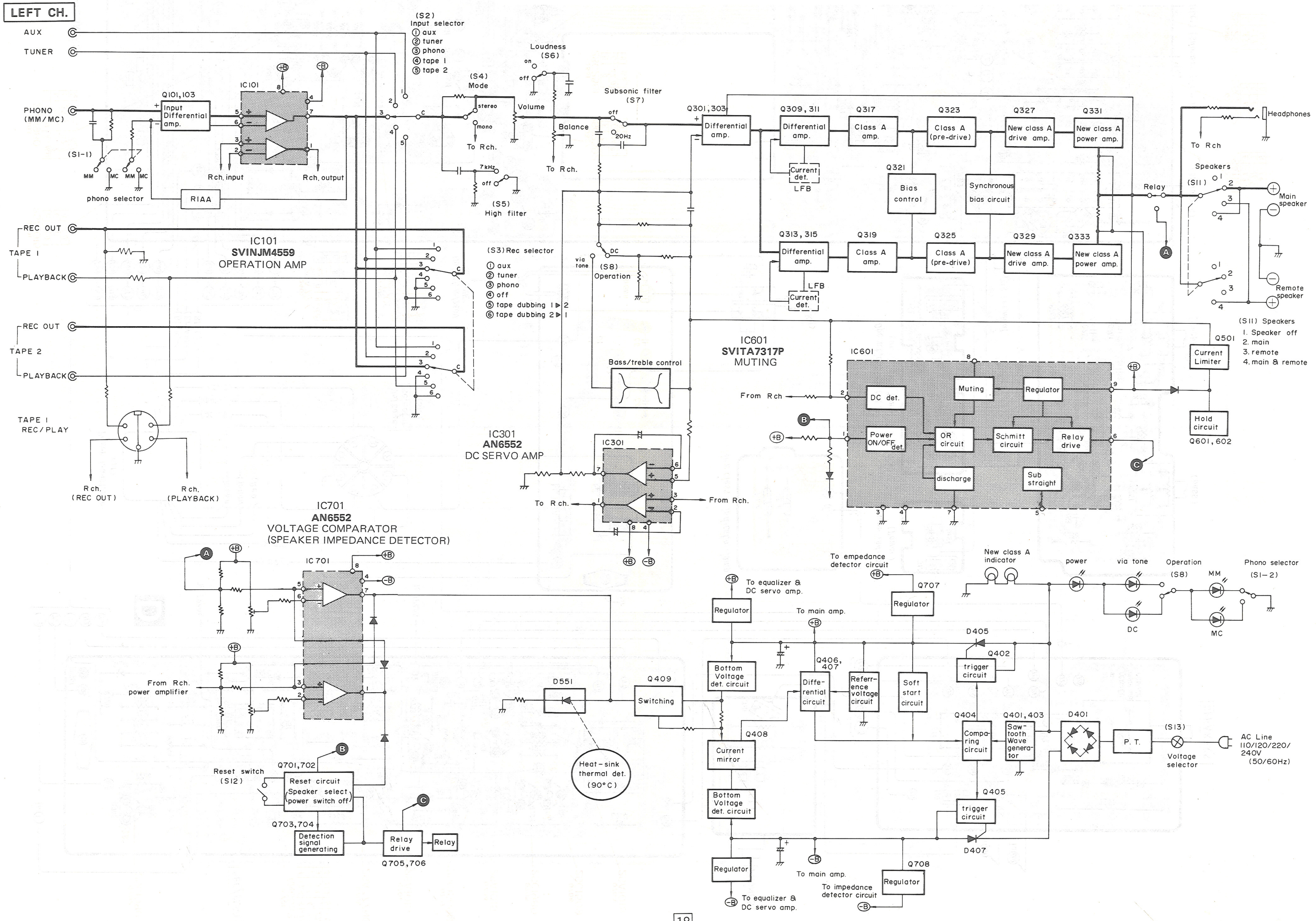


● Power source circuit for [XL] and [XA] area only


To
power switch
[XL] area
For Australia.
701
702
702
701
BLU
GRN/YEL
BRN
AC 110/120/220/240V
(50/60Hz)

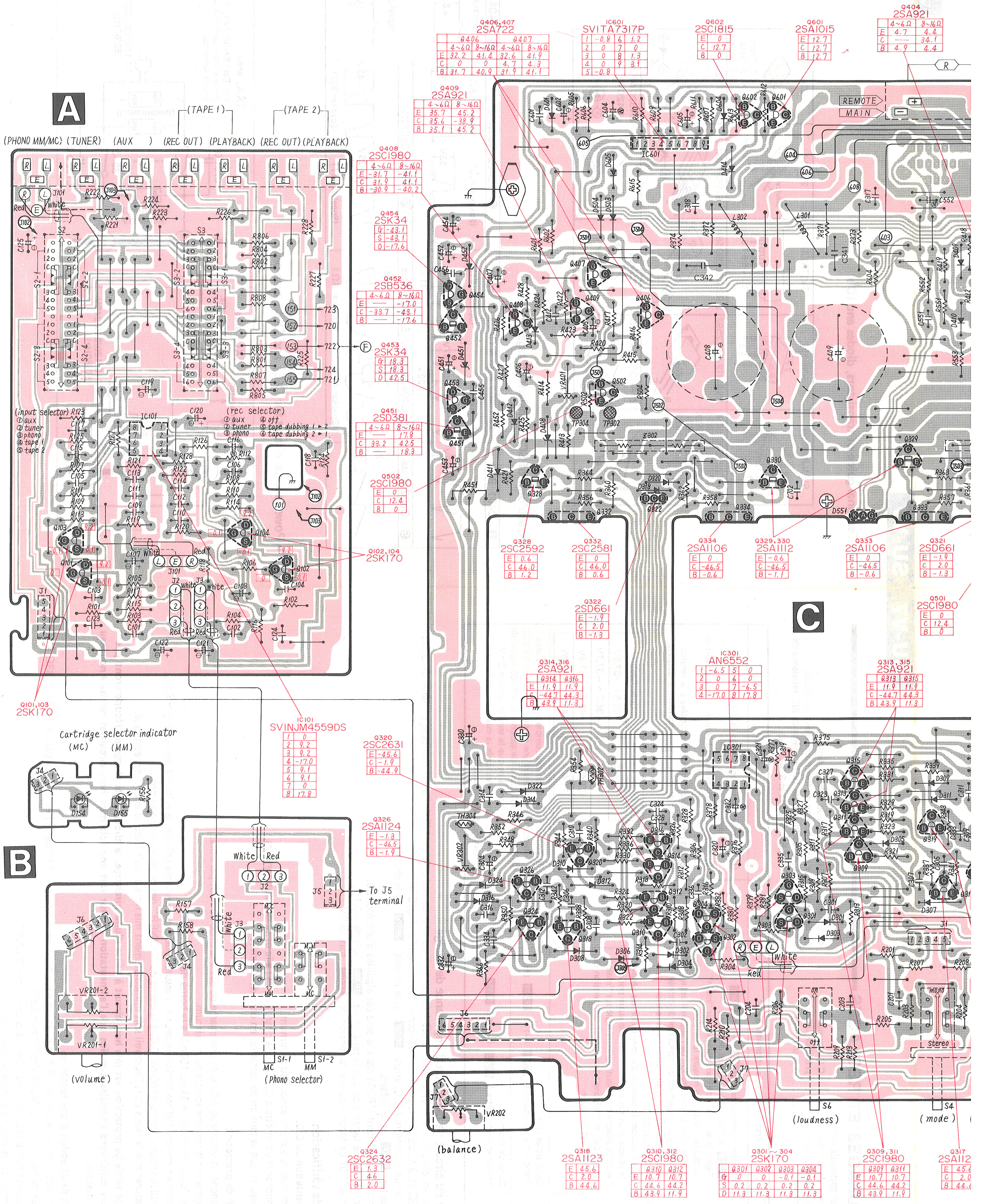

[XA] area
For East South Asia, Africa, Middle Near East and Central South America.
C701 0.01
704
S9—1
AC outlet
(Switched)
(Unswitched)
S9—2
703
C702 0.01
AC 110/120/220/240V
(50/60Hz)

BLOCK DIAGRAM


LEFT CH.
AUX
TUNER
PHONO (MM/MC)
(S1-1)
MM MC MM MC
phono selector
RIAA
Q101,103
Input Differential amp.
IC101
Rch. input
Rch. output
(S2) Input selector
① aux
② tuner
③ phono
④ tape 1
⑤ tape 2
(S4) Mode
stereo
mono
To Rch.
7kHz
off
(S5) High filter
Loudness (S6)
on
off
Volume
Balance
To Rch.
Subsonic filter (S7)
off
20Hz
REC OUT
TAPE 1
PLAYBACK
IC101
SVINJM4559
OPERATION AMP
REC OUT
TAPE 2
PLAYBACK
TAPE 1 REC/PLAY
Rch. (REC OUT)
Rch. (PLAYBACK)
(S3) Rec selector
① aux
② tuner
③ phono
④ off
⑤ tape dubbing 1 ▶ 2
⑥ tape dubbing 2 ▶ 1
via tone
DC
(S8) Operation
Bass/treble control
IC301
AN6552
DC SERVO AMP
IC301
To Rch.
From Rch.
Q301,303
Differential amp.
Q309, 311
Differential amp.
Current det.
LFB
Q317
Class A amp.
Q321
Bias control
Q323
Class A (pre-drive)
Synchronous bias circuit
Q327
New class A drive amp.
Q331
New class A power amp.
Q313, 315
Differential amp.
LFB
Current det.
Q319
Class A amp.
Q325
Class A (pre-drive)
Q329
New class A drive amp.
Q333
New class A power amp.
Relay
Headphones
To Rch
Speakers
(S11)
Main speaker
Remote speaker
(S11) Speakers
1. Speaker off
2. main
3. remote
4. main & remote
Q501
Current Limiter
Hold circuit
Q601,602
IC601
SVITA7317P
MUTING
IC601
From Rch
DC det.
Power ON/OFF det.
Muting
Regulator
OR circuit
Schmitt circuit
Relay drive
discharge
Sub straight
IC701
AN6552
VOLTAGE COMPARATOR
(SPEAKER IMPEDANCE DETECTOR)
IC701
From Rch. power amplifier
Reset switch (S12)
Q701,702
Reset circuit
Speaker select (power switch off)
Q703,704
Detection signal generating
Relay drive
Relay
Q705,706
D551
Heat-sink thermal det. (90°C)
Q409
Switching
To equalizer & DC servo amp.
Regulator
To main amp.
Bottom Voltage det. circuit
Q408
Current mirror
Bottom Voltage det. circuit
Regulator
To main amp.
To equalizer & DC servo amp.
To empedance detector circuit
Q707
Regulator
Q406, 407
Differential circuit
Referrence voltage circuit
Soft start circuit
D405
Q402
trigger circuit
Q404
Comparing circuit
Q401,403
Saw-tooth Wave generator
Q405
trigger circuit
D407
To impedance detector circuit
Q708
Regulator
D401
P. T.
(S13)
Voltage selector
AC Line 110/120/220/240V (50/60Hz)
New class A indicator
power
via tone
DC
Operation (S8)
MM
MC
Phono selector (S1-2)

CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM ······ Model SU-V7

🟥 Ground (Earth) lin


A
(PHONO MM/MC)
(TUNER)
(AUX)
(TAPE 1)
(TAPE 2)
(REC OUT)
(PLAYBACK)
(REC OUT)
(PLAYBACK)
(input selector)
① aux
② tuner
③ phono
④ tape 1
⑤ tape 2
(rec selector)
① aux
② tuner
③ phono
④ off
⑤ tape dubbing 1 → 2
⑥ tape dubbing 2 → 1
IC101
S2
S3
J101
J102
J103
J1
White
Red
Cartridge selector indicator
(MC)
(MM)
J4
D154
D155
B
White
Red
J2
J3
J5
To J5 terminal
J6
VR201-2
VR201-1
(volume)
S1-1
S1-2
MC
MM
(Phono selector)
J7
VR202
(balance)
C
REMOTE
MAIN
R
IC601
IC301
S6
(loudness)
S4
(mode)
stereo
mono
on
off

Q406, 407 2SA722

	Q406 4~6Ω	Q406 8~16Ω	Q407 4~6Ω	Q407 8~16Ω
E	32.2	41.4	32.6	41.9
C	0	0	4.7	4.3
B	31.7	40.9	31.9	41.1

IC601 SVITA7317P

1	-0.8	6	1.2
2	0	7	0
3	0	8	1.3
4	0	9	3.1
5	-0.8		

Q602 2SC1815

E	0
C	12.7
B	0

Q601 2SA1015

E	12.7
C	12.7
B	12.7

Q404 2SA921

	4~6Ω	8~16Ω
E	4.7	4.4
C	——	34.1
B	4.9	4.4

Q409 2SA921

	4~6Ω	8~16Ω
E	35.7	45.2
C	35.6	-38.9
B	35.1	45.2

Q408 2SC1980

	4~6Ω	8~16Ω
E	-31.7	-41.1
C	31.9	41.1
B	-30.9	-40.2

Q454 2SK34

G	-43.1
S	-43.1
D	-17.6

Q452 2SB536

	4~6Ω	8~16Ω
E	——	-17.0
C	-33.7	-43.1
B	——	-17.6

Q453 2SK34

G	18.3
S	18.3
D	42.5

Q451 2SD381

	4~6Ω	8~16Ω
E	——	17.8
C	33.2	42.5
B	——	18.3

Q502 2SC1980

E	0
C	12.4
B	0

Q102, 104 2SK170

Q101, 103 2SK170

IC101 SVINJM4559DS

1	0
2	9.2
3	9.2
4	-17.0
5	9.1
6	9.1
7	0
8	17.8

Q320 2SC2631

E	-45.6
C	-1.9
B	-44.9

Q326 2SA1124

E	-1.3
C	-46.5
B	-1.9

Q328 2SC2592

E	0.6
C	46.0
B	1.2

Q332 2SC2581

E	0
C	46.0
B	0.6

Q322 2SD661

E	-1.9
C	2.0
B	-1.3

Q334 2SA1106

E	0
C	-46.5
B	-0.6

Q329, 330 2SA1112

E	-0.6
C	-46.5
B	-1.1

Q333 2SA1106

E	0
C	-46.5
B	-0.6

Q321 2SD661

E	-1.9
C	2.0
B	-1.3

Q501 2SC1980

E	0
C	12.4
B	0

Q314, 316 2SA921

	Q314	Q316
E	11.9	11.9
C	-44.7	44.3
B	43.9	11.3

IC301 AN6552

1	-6.5	5	0
2	0	6	0
3	0	7	-6.5
4	-17.0	8	17.8

Q313, 315 2SA921

	Q313	Q315
E	11.9	11.9
C	-44.7	44.3
B	43.9	11.3

Q324 2SC2632

E	1.3
C	46
B	2.0

Q318 2SA1123

E	45.6
C	2.0
B	44.6

Q310, 312 2SC1980

	Q310	Q312
E	10.7	10.7
C	44.6	44.2
B	43.9	11.9

Q301 ~ 304 2SK170

	Q301	Q302	Q303	Q304
G	0	0	-0.1	-0.1
S	0.2	0.2	0.2	0.2
D	11.3	11.3	11.3	11.3

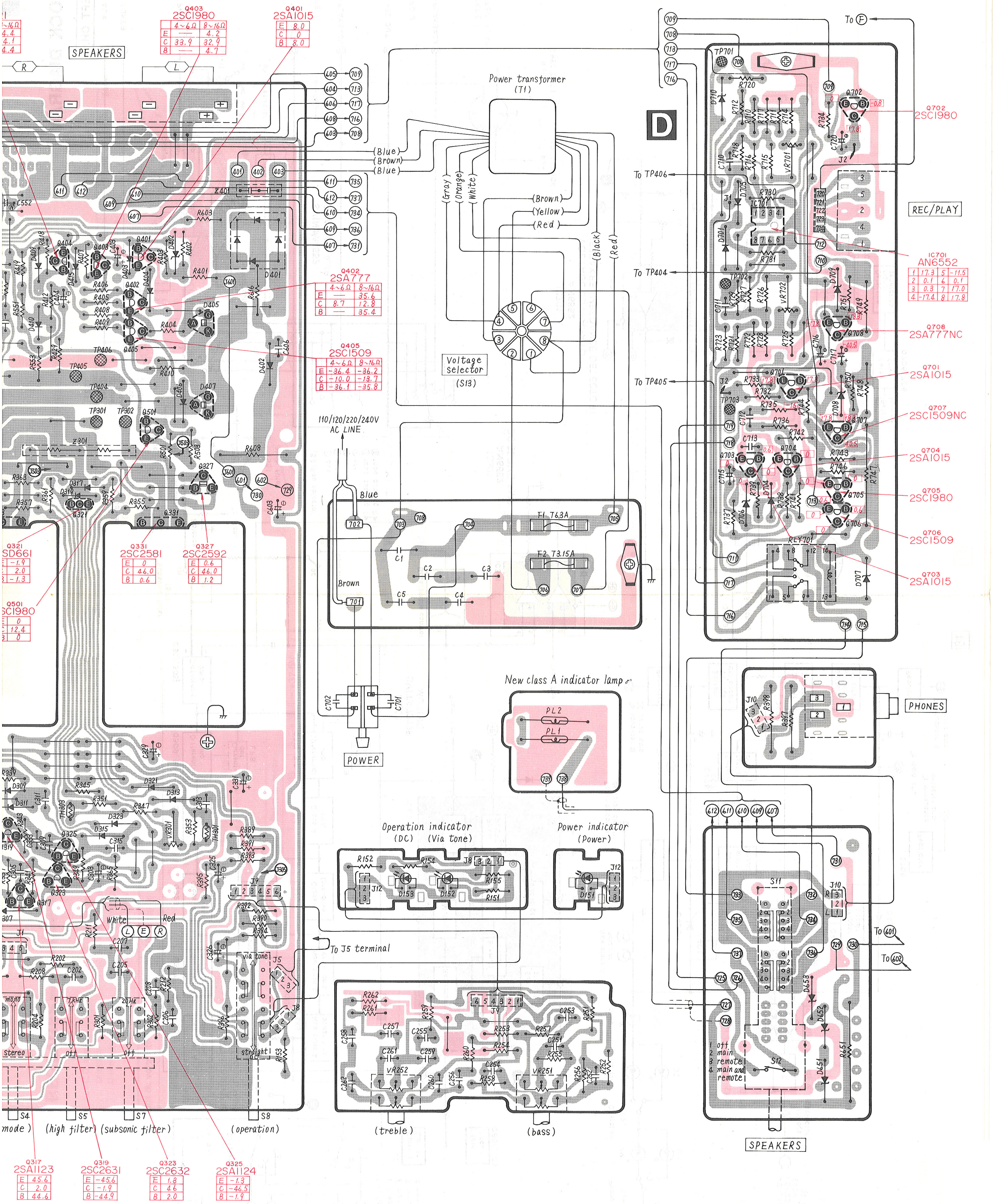
Q309, 311 2SC1980

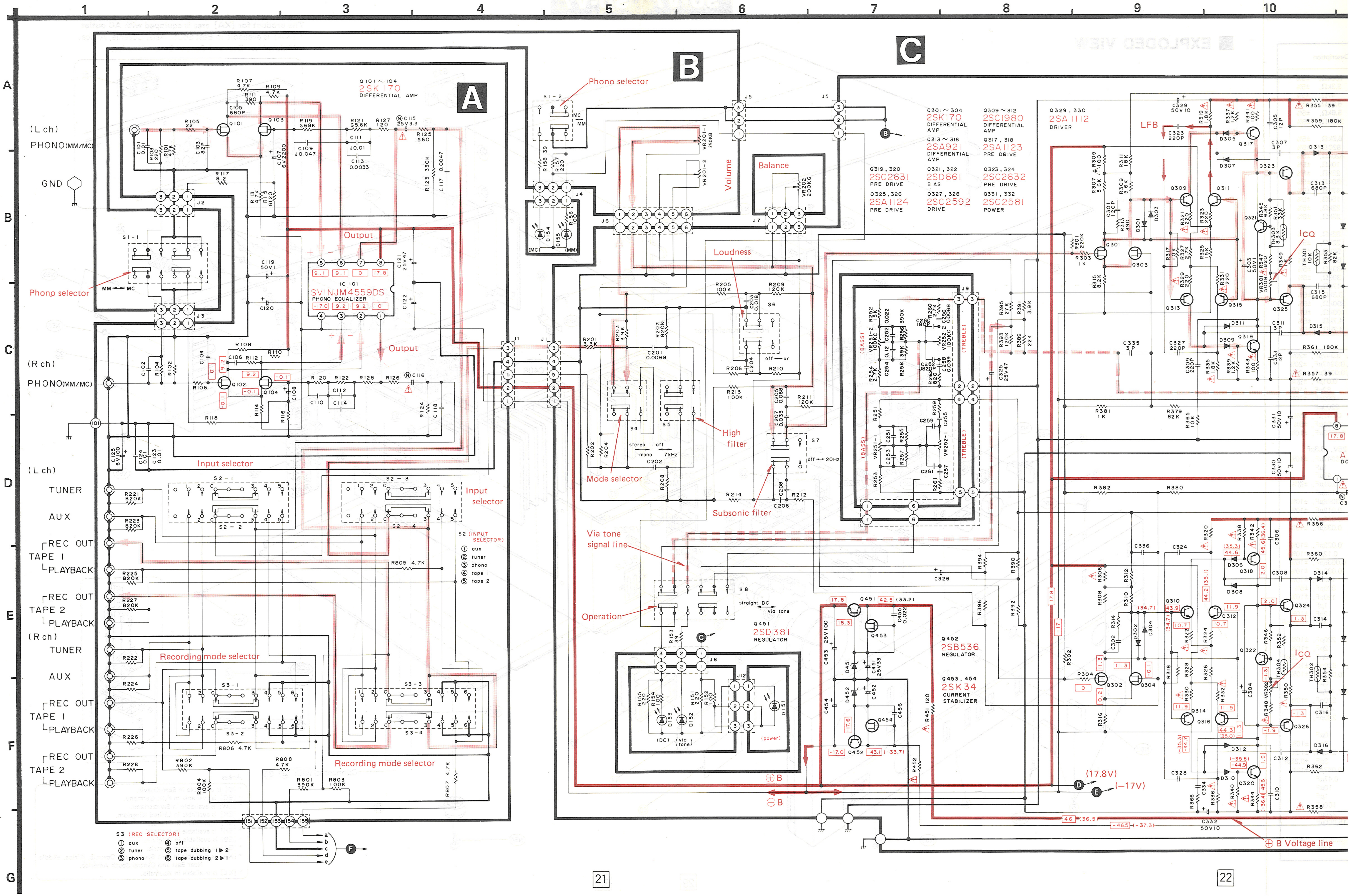
	Q309	Q311
E	10.7	10.7
C	44.6	44.2
B	43.9	11.9

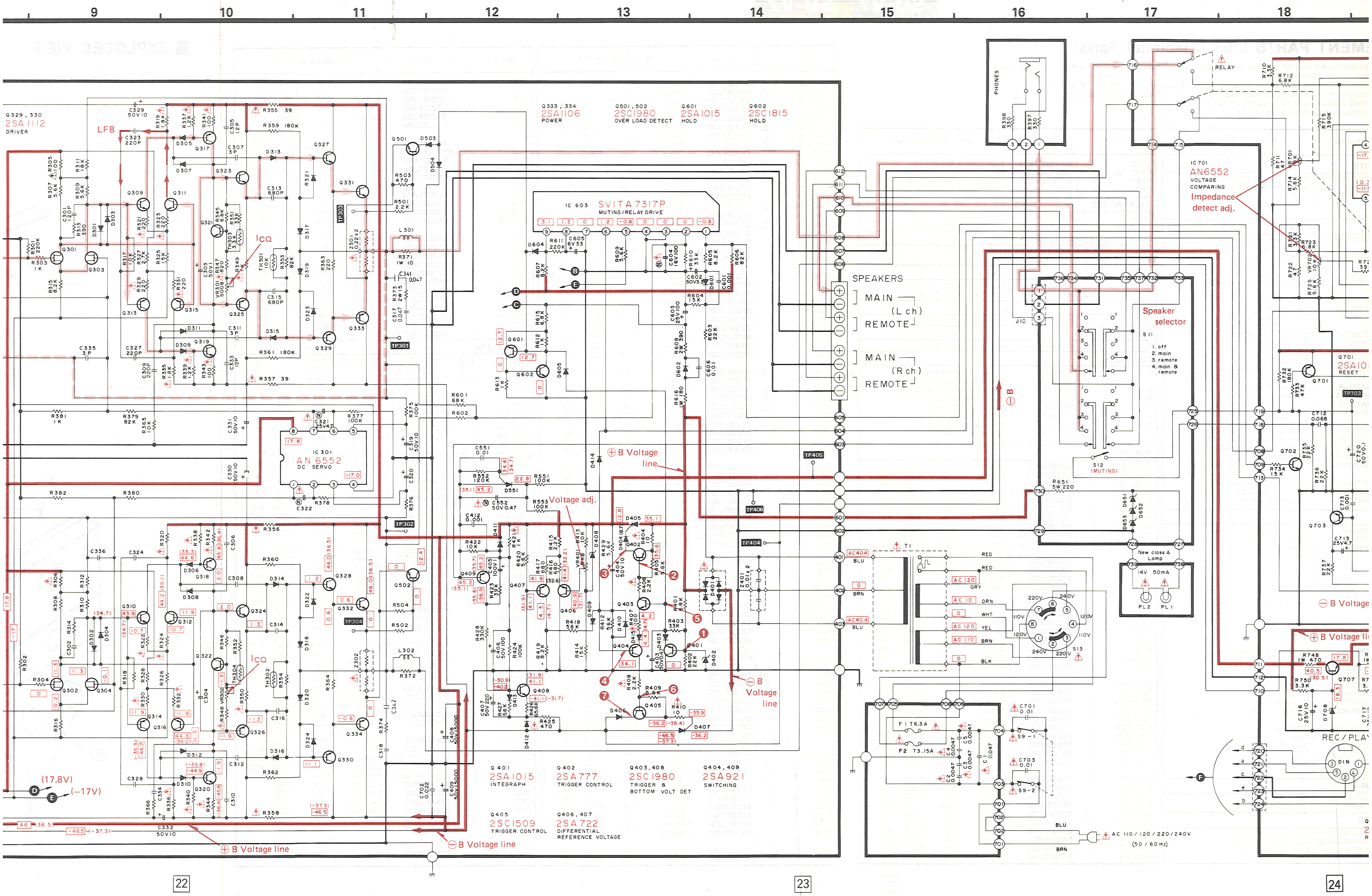
Q317 2SA112

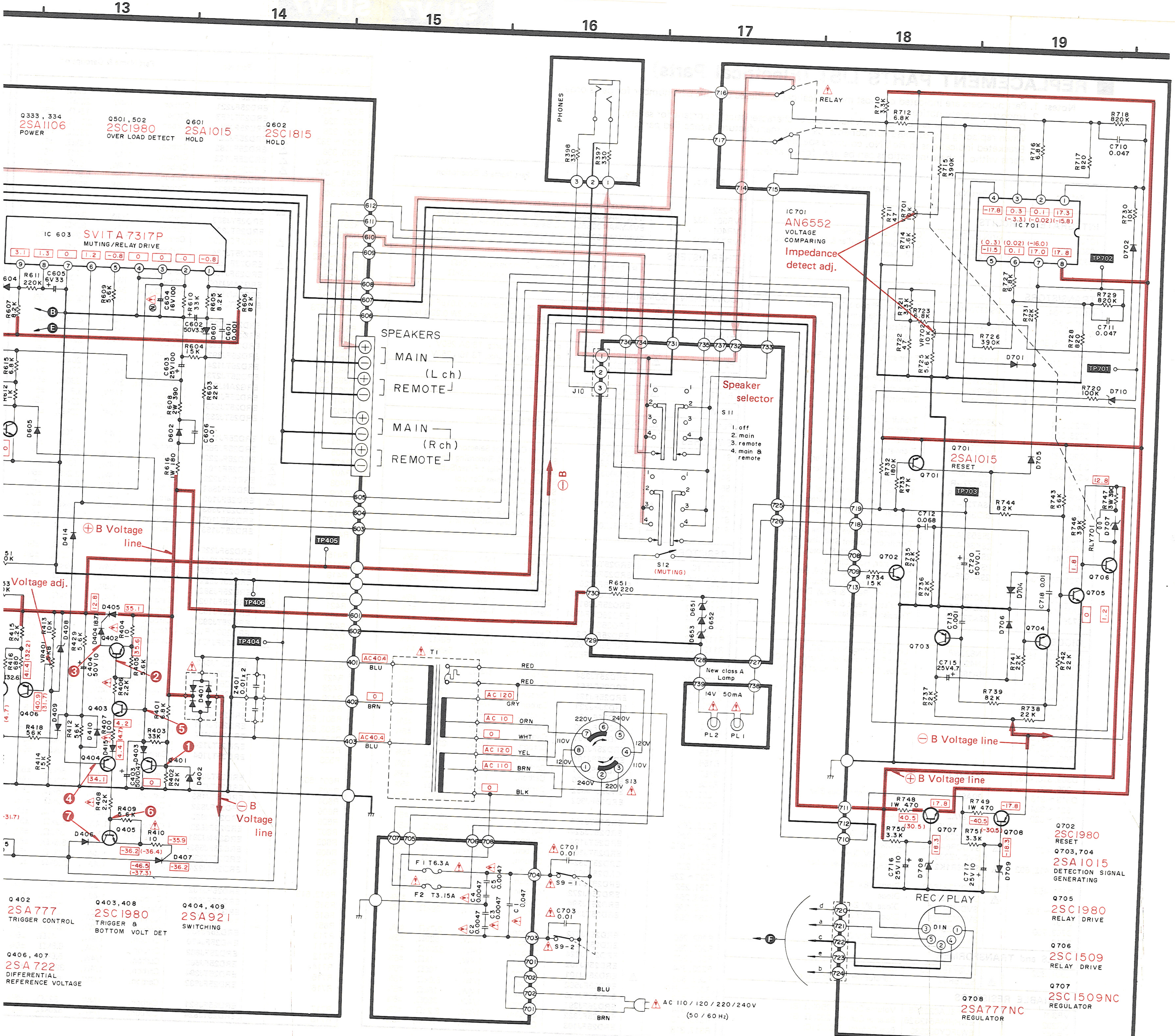
E	45.6
C	2.0
B	44.6

arth) lines


SPEAKERS
R
L
Q403
2SC1980
4~6Ω 8~16Ω
E — 4.2
C 33.9 32.9
B — 4.7
Q401
2SA1015
E 8.0
C 0
B 8.0
~16Ω
4.4
4.1
4.4
Q402
2SA777
4~6Ω 8~16Ω
E — 35.6
C 8.7 12.8
B — 35.4
Q405
2SC1509
4~6Ω 8~16Ω
E -36.4 -36.2
C -10.0 -13.7
B -36.1 -35.8
Q321
SD661
-1.9
2.0
-1.3
Q331
2SC2581
E 0
C 46.0
B 0.6
Q327
2SC2592
E 0.6
C 46.0
B 1.2
Q501
SC1980
0
12.4
0
Q317
2SA1123
E 45.6
C 2.0
B 44.6
Q319
2SC2631
E -45.6
C -1.9
B -44.9
Q323
2SC2632
E 1.3
C 46
B 2.0
Q325
2SA1124
E -1.3
C -46.5
B -1.9
Power transformer
(T1)
Blue
Brown
Blue
Gray
Orange
White
Brown
Yellow
Red
Black
Red
Voltage selector
(S13)
110/120/220/240V
AC LINE
Blue
Brown
F1 T6.3A
F2 T3.15A
POWER
D
To F
To TP406
To TP404
To TP405
REC/PLAY
Q702
2SC1980
IC701
AN6552
1 17.3 5 -11.5
2 0.1 6 0.1
3 0.3 7 17.0
4 -17.4 8 17.8
Q708
2SA777NC
Q701
2SA1015
Q707
2SC1509NC
Q704
2SA1015
Q705
2SC1980
Q706
2SC1509
Q703
2SA1015
New class A indicator lamp
PL2
PL1
PHONES
Operation indicator
(DC) (Via tone)
Power indicator
(Power)
To J5 terminal
To 601
To 602
1 off
2 main
3 remote
4 main and remote
S11
S12
SPEAKERS
S4
S5
S7
S8
mode)
(high filter)
(subsonic filter)
(operation)
(treble)
(bass)
via tone
straight
White
Red
mono
stereo
off


A
B
C
(L ch)
PHONO(MM/MC)
GND
(R ch)
PHONO(MM/MC)
(L ch)
TUNER
AUX
TAPE 1 REC OUT
PLAYBACK
TAPE 2 REC OUT
PLAYBACK
(R ch)
TUNER
AUX
TAPE 1 REC OUT
PLAYBACK
TAPE 2 REC OUT
PLAYBACK
Q101～104
2SK170
DIFFERENTIAL AMP
IC 101
SVINJM4559DS
PHONO EQUALIZER
Output
Phono selector
MM ←→ MC
Input selector
S2 (INPUT SELECTOR)
① aux
② tuner
③ phono
④ tape 1
⑤ tape 2
Recording mode selector
S3 (REC SELECTOR)
① aux
② tuner
③ phono
④ off
⑤ tape dubbing 1 ▶ 2
⑥ tape dubbing 2 ▶ 1
Volume
Balance
Loudness
Mode selector
stereo
mono
off
7kHz
High filter
Subsonic filter
off ← 20Hz
Via tone signal line
Operation
straight DC
via tone
(BASS)
(TREBLE)
Q451
2SD381
REGULATOR
Q452
2SB536
REGULATOR
Q453, 454
2SK34
CURRENT STABILIZER
(DC)
(via tone)
(power)
⊕B
⊖B
Q301～304
2SK170
DIFFERENTIAL AMP
Q309～312
2SC1980
DIFFERENTIAL AMP
Q329, 330
2SA1112
DRIVER
Q313～316
2SA921
DIFFERENTIAL AMP
Q317, 318
2SA1123
PRE DRIVE
Q319, 320
2SC2631
PRE DRIVE
Q321, 322
2SD661
BIAS
Q323, 324
2SC2632
PRE DRIVE
Q325, 326
2SA1124
PRE DRIVE
Q327, 328
2SC2592
DRIVE
Q331, 332
2SC2581
POWER
LFB
Icq
(17.8V)
(−17V)
⊕B Voltage line
1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G


9
10
11
12
13
14
15
16
17
18
Q329, 330
2SA1112
DRIVER
LFB
Q333, 334
2SA1106
POWER
Q501, 502
2SC1980
OVER LOAD DETECT
Q601
2SA1015
HOLD
Q602
2SC1815
HOLD
IC 603
SVITA 7317P
MUTING/RELAY DRIVE
PHONES
RELAY
IC701
AN6552
VOLTAGE
COMPARING
Impedance
detect adj.
SPEAKERS
MAIN
(L ch)
REMOTE
MAIN
(R ch)
REMOTE
Speaker
selector
S11
1. off
2. main
3. remote
4. main &
remote
S12
(MUTING)
⊖B
Ico
Ico
IC301
AN6552
DC SERVO
TP301
TP302
TP303
TP304
TP404
TP405
TP406
TP703
⊕B Voltage
line
Voltage adj.
⊖B
Voltage
line
New class A
Lamp
14V 50mA
PL2
PL1
T1
RED
RED
GRY
ORN
WHT
YEL
BRN
BLK
BLU
BRN
BLU
220V
240V
110V
120V
120V
110V
240V
220V
S13
F1 T6.3A
F2 T3.15A
S9-1
S9-2
AC 110/120/220/240V
(50/60Hz)
BLU
BRN
Q701
2SA10
RESET
⊖B Voltage
⊕B Voltage li
REC/PLAY
DIN
(17.8V)
(−17V)
⊕B Voltage line
⊖B Voltage line
Q401
2SA1015
INTEGRAPH
Q402
2SA777
TRIGGER CONTROL
Q403, 408
2SC1980
TRIGGER &
BOTTOM VOLT DET
Q404, 409
2SA921
SWITCHING
Q405
2SC1509
TRIGGER CONTROL
Q406, 407
2SA722
DIFFERENTIAL
REFERENCE VOLTAGE
22
23
24


13
14
15
16
17
18
19
Q333, 334
2SA1106
POWER
Q501, 502
2SC1980
OVER LOAD DETECT
Q601
2SA1015
HOLD
Q602
2SC1815
HOLD
IC 603
SVITA7317P
MUTING/RELAY DRIVE
PHONES
R398
R397
SPEAKERS
MAIN
(L ch)
REMOTE
MAIN
(R ch)
REMOTE
J10
Speaker selector
S11
1. off
2. main
3. remote
4. main & remote
S12
(MUTING)
New class A Lamp
14V 50mA
PL2
PL1
IC701
AN6552
VOLTAGE COMPARING
Impedance detect adj.
RELAY
RLY701
TP702
TP701
TP703
TP405
TP406
TP404
Q701
2SA1015
RESET
⊕B Voltage line
⊖B Voltage line
⊖B Voltage line
⊕B Voltage line
Voltage adj.
⊖B
T1
RED
RED
GRY
ORN
WHT
YEL
BRN
BLK
BLU
BRN
BLU
220V
240V
110V
120V
S13
F1 T6.3A
F2 T3.15A
S9-1
S9-2
C701 0.01
C703 0.01
AC 110/120/220/240V (50/60Hz)
REC/PLAY
DIN
Q402
2SA777
TRIGGER CONTROL
Q403, 408
2SC1980
TRIGGER & BOTTOM VOLT DET
Q404, 409
2SA921
SWITCHING
Q406, 407
2SA722
DIFFERENTIAL REFERENCE VOLTAGE
Q702
2SC1980
RESET
Q703, 704
2SA1015
DETECTION SIGNAL GENERATING
Q705
2SC1980
RELAY DRIVE
Q706
2SC1509
RELAY DRIVE
Q707
2SC1509NC
REGULATOR
Q708
2SA777NC
REGULATOR
23
24

SCHEMATIC DIAGRAM

Notes:

1. **S1-1, S1-2:** MM/MC cartridge (phono) selector switch in "**MM**" position.
2. **S2-1, S2-4:** Input selector switch in "**phono**" position. (① aux ⟷ ② tuner ⟷ ③ phono ⟷ ④ tape 1 ⟷ ⑤ tape 2)
3. **S3-1~S3-4:** Recording output selector switch in "**phono**" position. (① aux ⟷ ② tuner ⟷ ③ phono ⟷ ④ off ⟷ ⑤ tape dubbing 1 ▶ 2 ⟷ ⑥ tape dubbing 2 ▶ 1)
4. **S4:** Mode switch in "**stereo**" position.
5. **S5:** High filter switch in "**off**" position. (off ⟷ 7kHz, –6dB/oct.)
6. **S6:** Loudness switch in "**off**" position.
7. **S7:** Subsonic filter switch in "**off**" position (off ⟷ 20Hz, –12dB/oct.)
8. **S8:** Operation switch in "**straight DC**" position (straight DC ⟷ via tone)
9. **S9-1, S9-2:** Power source switch in "**on**" position.
10. **S11, S12:** Speakers selector switch in "**main**" position. (① off ⟷ ② main ⟷ ③ remote ⟷ ④ main and remote)
11. **S13:** Voltage selector switch in "**220V**" position. (120V ⟷ 110V ⟷ 220V ⟷ 240V)
12. Same circuit is used for both L and R channels. For the resistance and capacity of R channel (bottom of circuit diagram), refer to L channel. For the voltage value, refer to R channel.
13. ▭ Indicated voltage values are the standard values for the DC electronic circuit tester (high impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
    - * The voltage values in ▭ are those obtained with speaker selector set at "**main**" and load impedance at "8Ω".
    - * The parenthesized voltage values are those obtained with speaker selector at "**main**" and load impedance at "4Ω". (Same voltage values are indicated with speaker selector set at "**main and remote**" or with heat sensing SCR D551 turned ON.
14. ▨ Phono signal lines of left channel
15. ➡ Positive (+B) voltage lines.
16. Important safety notice:
    Components identified by ⚠ mark have special characteristics importnat for safety. When replacing any of these components, use only manufacturer's specified parts.

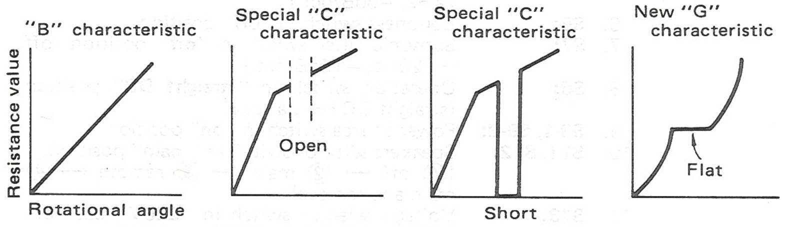
● **Part number of diodes**

Diode Ref. No.	Production Part No.	Standardized Part No.
D151, 153, 155	LN820WP	
D152, 154	LN420WP	
D301 ~ 304	MA150	MA162
D305, 306, 309, 310	SVDMA26-1	MA27A1
D307, 308, 311, 312	MA162A	
D313 ~ 316, 321~324	OA90	2-OA90
D317 ~ 320	SVDMA26-2	MA27A2
D401	SVDS10VB20F	
D402	SVDMZ320B	
D403, 409, 410, 415	MA150	MA162A
D405, 407	SVDCR6AM-2	
D408	SVDMZ306	
D404, 406, 414	MA162	MA162A
D411, 412	SVDSR1K2	
D413	SVDMA26-1	MA27A1
D451, 452	SVDMZ318A2	
D503, 504	MA162	MA162A
D551	SVTTT201-90	
D601, 604, 605	MA150	MA162A
D602	SVDSR1K2	
D603	SVDMZ422B	
D651 ~ 653	SVDMZ409B	
D701 ~ 706	MA150	MA162A
D707	SVDMZ322	
D708, 709	SVDMZ318	
D710	SVDMZ339	

- **Variable resistors used in this unit**

The sound volume VR and circuit adjusting semifixed volume VR are using "B" characteristic of which resistance varies in proportion to rotational angle. Treble volume VR uses special "C" characteristic of which both ends of volume are open at the middle. Bass volume VR uses special "C" characteristic of which both ends of volume are short-circuited at the middle.

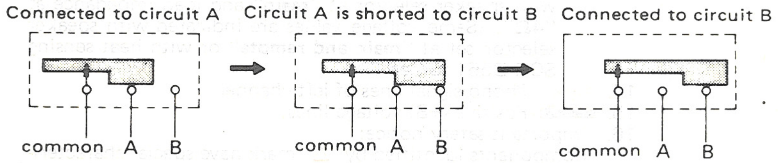
Balance volume VR uses "G" characteristic of which the resistance value is constant at the middle.



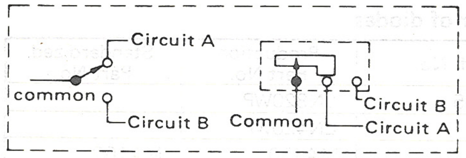
- **Shorting Switch**

This unit uses a horting switch. As illustated below, the circuit is shorted to the next circuit without being opened.

In the circuit diagram, the shaded area represents the common terminal.



An example of circuit diagram



REPLACEMENT PARTS LIST (Electrical Parts)

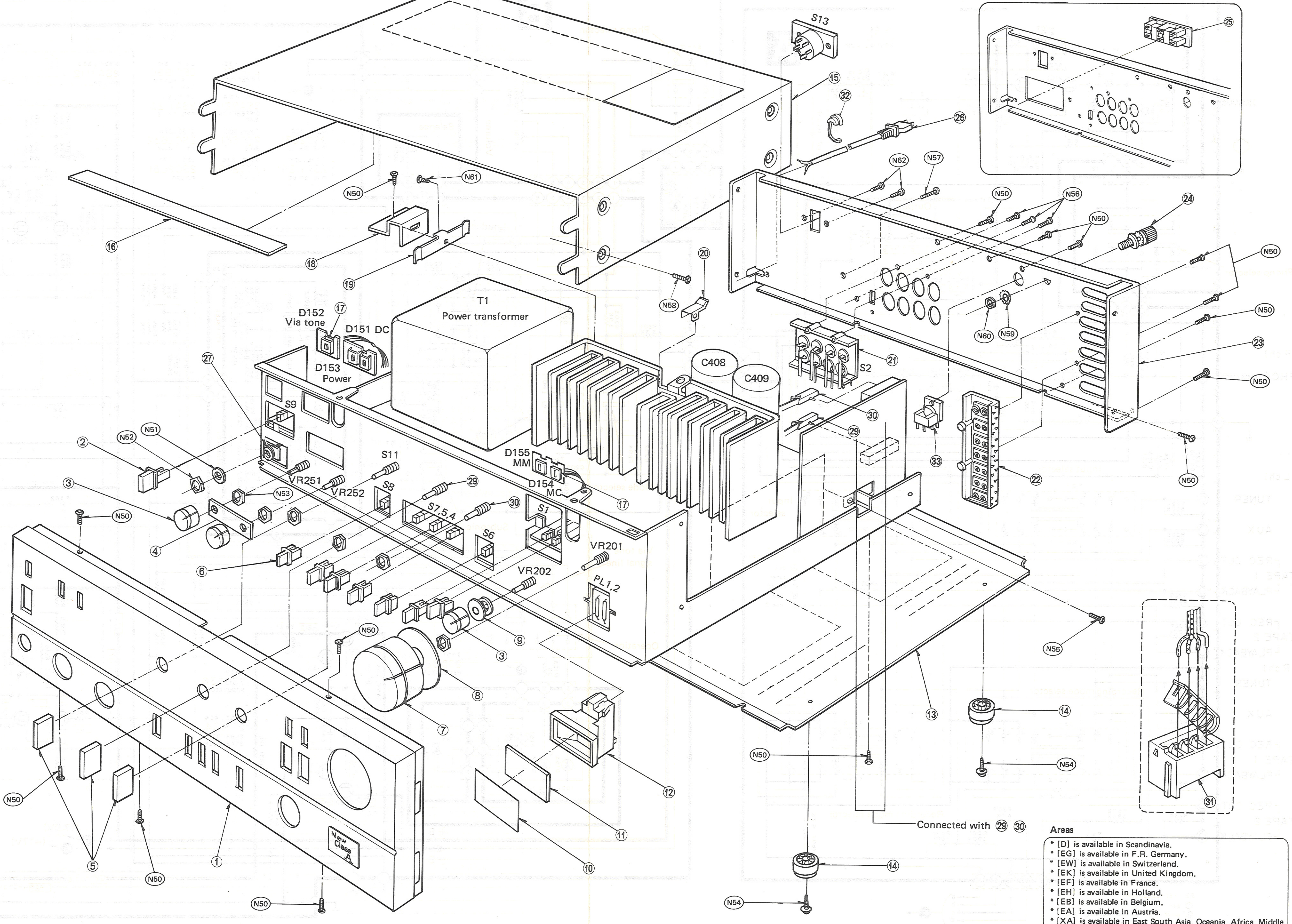
Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.

Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUITS			
IC101		SVINJM4559DD	IC, Equalizer Amplifier
IC301, 701		AN6552F	IC, DC Servo Amplifier & Voltage Comprator
IC601		SVITA7317P	IC, Protection
TRANSISTORS			
Q101 ~ 104, 301 ~ 304		2SK170–GR	Transistor, Phono & Main Input Differential Amplifier
Q309 ~ 312, 403, 408, 501, 502		2SC1980–T	Transistor, Differential (LFB Circuit) & Current Mirror Circuit
Q313 ~ 316 404, 409		2SA921–T	Transistor, Differential (LFB Circuit)
Q317, 318		2SA1123–R	Transistor, Pre-Driver
Q319, 320		2SC2631–R	Transistor, Pre-Driver
Q321, 322		2SD661–S	Transistor, Bias Supply
Q323, 324		2SC2632–R	Transistor, Pre-Driver
Q325, 326		2SA1124–R	Transistor, Pre-Driver
Q327, 328		2SC2592–R	Transistor, Driver
Q329, 330		2SA1112–R	Transistor, Driver
Q331, 332		2SC2581–Y	Transistor, Power Amplifier
Q333, 334		2SA1106–Y	Transistor, Power Amplifier
Q402		**2SA777–R**	Transistor, Trigger Control
Q405		**2SC1509FR**	Transistor, Trigger Control
Q406, 407		**2SA722–T**	Transistor, Reference Voltage Control
Q451		2SD381A–L9	Transistor, Positive Voltage Control
Q452		2SB536A–L9	Transistor, Positive Voltage Control
Q453, 454		2SK34–D1	Transistor, Current Stabilizer [FET]
Q601, 401		2SA1015–Y	Transistor, Integrph & Hold Circuit
Q602		2SC1815–Y	Transistor, Hold Circuit
Q701, 703, 704		2SA1015–Y	Transistor, Reset Circuit & Petection Signal Generating Circuit
Q702, 705		2SC1980–T	Transistor, Reset & Relay Drive
Q706, 707		**2SC1509FR**	Transistor, Reset & Relay Drive
Q708		**2SA777–R**	Transistor, Regulator
DIODES			
D151, 153, 155		LN820WP	Light Emitting Diode (DC, MM)
D152, 154		LN420WP	Light Emitting Diode (Viatone, MC)
D301 ~ 304, 307, 308, 311, 312, 404, 406, 414, 415, 403, 409, 410, 503, 504 601, 604, 605, 701, 702, 704, 705, 706		**MA162A**	Diode, Switching (Product Part No. MA150)
D309, 310, 413, 305, 306		**MA27A1**	Diode
D313 ~ 316 321 ~ 324		**20A90**	Diode, Synchronous Bias
D317 ~ 320		**MA27A2**	Diode
D401	⚠	SVDS10VB20F	Diode, Rectifier
D402		SVDMZ320B	Diode, 20V Zener
D405, 407	⚠	SVDCR6AM–2	Diode
D408		SVDMZ306	Diode, 6V Zener
D411, 412, 602	⚠	**SVDSR1K2**	Diode, Relay Pulse Killer
D451, 452		SVDMZ318A2	Diode, 18V Zener
D551	⚠	SVTTT201–90	Diode
D651 ~ 653		SVDMZ409B	Diode, 9V Zener
D707		SVDMZ322B	Diode, 22V Zener
D708, 709		SVDMZ318A	Diode, 18V Zener
D710		SVDMZ339B	Diode, 39V Zener
COILS and TRANSFORMER			
L301, 302		SLQY15G–30	Coil, Choke
T1	⚠	SLT5R47	Transformer, Power Source
VARIABLE RESISTORS			
VR201		EWF6LA022BF5	Volume Control, 250kΩ (B)
VR202		EWHHMA542G25	Balance Control, 200kΩ (G)
VR251		EWJFCY090530	Bass Control, 100kΩ (C)
VR252		EWJFC0090C15	Treble Control, 100kΩ (C)
VR301, 302		**EVNM4AA00B52**	DC Balance Adjustment, 500Ω (B)
VR401		**EVNM4AA00B53**	DC Balance Adjustment, 5kΩ (B)
VR701, 702		**EVNM4AA00B14**	Voltage Detect Adjustment, 10kΩ (B)
THERMISTERS			
TH301, 302		ERTD2ZHL103S	Thermal Compensation, 10kΩ
TH303, 304		ERTD2ZHL332S	Thermal Compensation, 3.3kΩ
COMPONENT COMBINATIONS			
Z401	⚠	RXAF103P22HD	Component Combination, 0.01μF (x2)
Z301, 302	⚠	ERF3GBKR22N	Component Combination, 3W 0.22Ω (x2)
FUSES			
F1	⚠	XBA2C63TRO	Fuse, Power Source, T6.3A 250V
F2	⚠	XBA2C31TRO	Fuse, Power Source, T3.15A 250V
RELAY			
RLY701	⚠	SSY99	Relay, Protection
LAMPS			
PL1, 2	⚠	XAMR85S15	New Class A Indicator
SWITCHES			
S1		SSH2003	Switch, Cartridge Selector
S2, 3		ESA2682	Switch, Input & Recording Mode Selector
S4, 5, 7		SSH3005	Switch, Mode/Hight Filter/Subsonic
S6		SSH179	Switch, Loundness Control
S8		SSH181	Switch, Operation Selector
S9	⚠	ESB90217S	Switch, Power
S11		SSR167	Switch, Speaker Selector
S13	⚠	ESE37200	Switch, Voltage Adjustment
RESISTORS			
R101, 102		**ERD25TJ473**	Carbon, 1/4W, 47kΩ, ±5%
R103, 104		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ±5%
R105, 106		**ERD25FJ220**	Carbon, 1/4W, 22Ω, ±5%
R107 ~ 110		ERO25CKF4701	Metal Film, 1/4W, 4.7kΩ, ±1%
R111, 112		**ERD25FJ391**	Carbon, 1/4W, 390Ω, ±5%
R113, 114		ERO25CKF4701	Metal Film, 1/4W, 4.7kΩ, ±1%
R115, 116		ERO25CKF1200	Metal Film, 1/4W, 120Ω, ±1%
R117, 118		**ERD25FJ8R2**	Carbon, 1/4W, 8.2Ω, ±5%
R119, 120		ERO25CKF6802	Metal Film, 1/4W, 68kΩ, ±1%
R121, 122		ERO25CKF5601	Metal Film, 1/4W, 5.6kΩ, ±1%
R123, 124		**ERD25TJ334**	Carbon, 1/4W, 330kΩ, ±5%
R125, 126		**ERD25FJ561**	Carbon, 1/4W, 560Ω, ±5%
R127, 128		**ERD25FJ121**	Carbon, 1/4W, 120Ω, ±5%
R151		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ±5%
R152		**ERD25FJ101**	Carbon, 1/4W, 100Ω, ±5%
R153		**ERD25FJ390**	Carbon, 1/4W, 39Ω, ±5%
R154		**ERD25FJ101**	Carbon, 1/4W, 100Ω, ±5%
R155		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ±5%
R156		**ERD25FJ101**	Carbon, 1/4W, 100Ω, ±5%
R157		**ERD25FJ221**	Carbon, 1/4W, 220Ω, ±5%
R158		**ERD25FJ390**	Carbon, 1/4W, 39Ω, ±5%
R201, 202		**ERD25FJ332**	Carbon, 1/4W, 3.3kΩ, ±5%
R203, 204		**ERD25FJ392**	Carbon, 1/4W, 3.9kΩ, ±5%
R205, 206		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ±5%
R207, 208		**ERD25TJ824**	Carbon, 1/4W, 820kΩ, ±5%
R209 ~ 212		**ERD25TJ124**	Carbon, 1/4W, 120kΩ, ±5%
R213, 214		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ±5%
R221, 222		**ERD25TJ824**	Carbon, 1/4W, 820kΩ, ±5%
R223 ~ 228		**ERD25TJ824**	Carbon, 1/4W, 820kΩ, ±5%
R251, 252		**ERD25TJ153**	Carbon, 1/4W, 15kΩ, ±5%
R253, 254		**ERD25FJ272**	Carbon, 1/4W, 2.7kΩ, ±5%
R255, 256		**ERD25TJ394**	Carbon, 1/4W, 390kΩ, ±5%
R257, 258		**ERD25TJ393**	Carbon, 1/4W, 39kΩ, ±5%
R259, 260		**ERD25FJ272**	Carbon, 1/4W, 2.7kΩ, ±5%
R261, 262		**ERD25FJ821**	Carbon, 1/4W, 820Ω, ±5%
R301, 302		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ±5%
R303, 304		**ERD25FJ102**	Carbon, 1/4W, 1kΩ, ±5%
R305, 306	⚠	**ERD25FJ101**	Carbon, 1/4W, 100Ω, ±5%
R307 ~ 310		**ERD25FJ562**	Carbon, 1/4W, 5.6kΩ, ±5%
R311, 312		**ERD25TJ183**	Carbon, 1/4W, 18kΩ, ±5%
R313, 314		**ERD25FJ391**	Carbon, 1/4W, 390Ω, ±5%
R315, 316		**ERD25FJ822**	Carbon, 1/4W, 8.2kΩ, ±5%
R317, 318		**ERD25FJ103**	Carbon, 1/4W, 10kΩ, ±5%

Ref. No.		Part No.	Part Name & Description
R319, 320	⚠	**ERD25FJ182**	Carbon, 1/4W, 1.8kΩ, ±5%
R321 ~ 324	⚠	**ERD25FJ221**	Carbon, 1/4W, 220Ω, ±5%
R325, 326		**ERD25TJ153**	Carbon, 1/4W, 15kΩ, ±5%
R327, 328		**ERD25FJ272**	Carbon, 1/4W, 2.7kΩ, ±5%
R329 ~ 332	⚠	**ERD25FJ221**	Carbon, 1/4W, 220Ω, ±5%
R335, 336	⚠	**ERD25FJ182**	Carbon, 1/4W, 1.8kΩ, ±5%
R337 ~ 340	⚠	**ERD25FJ122**	Carbon, 1/4W, 1.2kΩ, ±5%
R341 ~ 344	⚠	ERD2FCG101	Carbon, 1/4W, 100Ω, ±2%
R345, 346		**ERD25FJ682**	Carbon, 1/4W, 6.8kΩ, ±5%
R347, 348	⚠	**ERD25FJ821**	Carbon, 1/4W, 820Ω, ±5%
R349, 350	⚠	**ERD25FJ102**	Carbon, 1/4W, 1kΩ, ±5%
R351, 352		**ERD25TJ333**	Carbon, 1/4W, 33kΩ, ±5%
R353, 354		**ERD25TJ823**	Carbon, 1/4W, 82kΩ, ±5%
R355 ~ 358	⚠	ERD2FCG390	Carbon, 1/4W, 39Ω, ±2%
R359 ~ 362		**ERD25TJ184**	Carbon, 1/4W, 180kΩ, ±5%
R363, 364	⚠	**ERD25FJ221**	Carbon, 1/4W, 220Ω, ±5%
R365, 366		**ERD25FJ103**	Carbon, 1/4W, 10kΩ, ±5%
R371, 372		**ERG1ANJ100**	Metal Oxide, 1W, 10Ω, ±5%
R373, 374		**ERG2ANJ150**	Metal Oxide, 2W, 15Ω, ±5%
R375 ~ 378		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ±5%
R379, 380		**ERD25TJ823**	Carbon, 1/4W, 82kΩ, ±5%
R381, 382		**ERD25FJ102**	Carbon, 1/4W, 1kΩ, ±5%
R389, 390		**ERD25TJ223**	Carbon, 1/4W, 22kΩ, ±5%
R391, 392		**ERD25FJ392**	Carbon, 1/4W, 3.9kΩ, ±5%
R393, 394		**ERD25TJ124**	Carbon, 1/4W, 120kΩ, ±5%
R395, 396		**ERD25TJ273**	Carbon, 1/4W, 27kΩ, ±5%
R397, 398		**ERG2ANJ331**	Metal Oxide, 2W, 330Ω, ±5%
R401		**ERD25FJ682**	Carbon, 1/4W, 6.8kΩ, ±5%
R402		**ERD25TJ223**	Carbon, 1/4W, 22kΩ, ±5%
R403		**ERD25TJ333**	Carbon, 1/4W, 33kΩ, ±5%
R404	⚠	**ERD25FJ100**	Carbon, 1/4W, 10Ω, ±5%
R405		**ERD25FJ562**	Carbon, 1/4W, 5.6kΩ, ±5%
R406	⚠	**ERD25FJ222**	Carbon, 1/4W, 2.2kΩ, ±5%
R407	⚠	**ERD25FJ101**	Carbon, 1/4W, 100Ω, ±5%
R408	⚠	**ERD25FJ222**	Carbon, 1/4W, 2.2kΩ, ±5%
R409		**ERD25FJ562**	Carbon, 1/4W, 5.6kΩ, ±5%
R410	⚠	**ERD25FJ100**	Carbon, 1/4W, 10Ω, ±5%
R412		**ERD25TJ563**	Carbon, 1/4W, 56kΩ, ±5%
R413		**ERD25FJ103**	Carbon, 1/4W, 10kΩ, ±5%
R414		**ERD25TJ153**	Carbon, 1/4W, 15kΩ, ±5%
R415		**ERD25FJ222**	Carbon, 1/4W, 2.2kΩ, ±5%
R416, 417		**ERD25FJ681**	Carbon, 1/4W, 680Ω, ±5%
R418		**ERD25TJ563**	Carbon, 1/4W, 56kΩ, ±5%
R419		**ERD25FJ822**	Carbon, 1/4W, 8.2kΩ, ±5%
R420		**ERD25FJ562**	Carbon, 1/4W, 5.6kΩ, ±5%
R421	⚠	**ERD25FJ102**	Carbon, 1/4W, 1kΩ, ±5%
R422		**ERD25FJ103**	Carbon, 1/4W, 10kΩ, ±5%
R423		**ERD25TJ393**	Carbon, 1/4W, 39kΩ, ±5%
R424		ERO25CKF1003	Metal Film, 1/4W, 100kΩ, ±1%
R425	⚠	**ERD25FJ471**	Carbon, 1/4W, 470Ω, ±5%
R426		**ERD25FJ562**	Carbon, 1/4W, 5.6kΩ, ±5%
R427		ERO25CKF5601	Metal Film, 1/4W, 5.6kΩ, ±1%
R428		ERO25CKF3303	Metal Film, 1/4W, 330kΩ, ±1%
R429		**ERD25FJ562**	Carbon, 1/4W, 5.6kΩ, ±5%
R451, 452	⚠	ERD2FCG121	Carbon, 1/4W, 120Ω, ±2%
R501, 502		**ERD25FJ222**	Carbon, 1/4W, 2.2kΩ, ±5%
R503, 504		**ERD25FJ471**	Carbon, 1/4W, 470Ω, ±5%
R551		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ±5%
R552		**ERD25TJ124**	Carbon, 1/4W, 120kΩ, ±5%
R553		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ±5%
R601, 602		**ERD25TJ683**	Carbon, 1/4W, 68kΩ, ±5%
R603		**ERD25TJ223**	Carbon, 1/4W, 22kΩ, ±5%
R604		**ERD25TJ153**	Carbon, 1/4W, 15kΩ, ±5%
R605		**ERD25FJ822**	Carbon, 1/4W, 8.2kΩ, ±5%
R606		**ERD25TJ823**	Carbon, 1/4W, 82kΩ, ±5%
R607		**ERD25FJ822**	Carbon, 1/4W, 8.2kΩ, ±5%
R608		**ERG2ANJ391**	Metal Oxide, 2W, 390Ω, ±5%
R609		**ERD25FJ562**	Carbon, 1/4W, 5.6kΩ, ±5%
R610		**ERD25TJ333**	Carbon, 1/4W, 33kΩ, ±5%
R611		**ERD25TJ224**	Carbon, 1/4W, 220kΩ, ±5%
R612, 613		**ERD25FJ102**	Carbon, 1/4W, 1kΩ, ±5%
R615		**ERD25FJ682**	Carbon, 1/4W, 6.8kΩ, ±5%
R616		**ERG1ANJ181**	Metal Oxide, 1W, 180Ω, ±5%
R651	⚠	ERF5AJ221	Non-Flammable, 5W, 220Ω, ±5%
R710		**ERD25FJ332**	Carbon, 1/4W, 3.3kΩ, ±5%
R711		**ERD25FJ470**	Carbon, 1/4W, 47Ω, ±5%
R712		**ERD25FJ682**	Carbon, 1/4W, 6.8kΩ, ±5%
R714		**ERD25FJ562**	Carbon, 1/4W, 5.6kΩ, ±5%
R715		**ERD25TJ394**	Carbon, 1/4W, 390kΩ, ±5%
R716		**ERD25FJ682**	Carbon, 1/4W, 6.8kΩ, ±5%
R717		**ERD25FJ821**	Carbon, 1/4W, 820Ω, ±5%
R718		**ERD25TJ824**	Carbon, 1/4W, 820kΩ, ±5%
R720		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ±5%
R721		**ERD25FJ332**	Carbon, 1/4W, 3.3kΩ, ±5%
R722		**ERD25FJ470**	Carbon, 1/4W, 47Ω, ±5%
R723		**ERD25FJ682**	Carbon, 1/4W, 6.8kΩ, ±5%
R725		**ERD25FJ562**	Carbon, 1/4W, 5.6kΩ, ±5%
R726		**ERD25TJ394**	Carbon, 1/4W, 390kΩ, ±5%
R727		**ERD25FJ682**	Carbon, 1/4W, 6.8kΩ, ±5%
R728		**ERD25FJ821**	Carbon, 1/4W, 820Ω, ±5%
R729		**ERD25TJ824**	Carbon, 1/4W, 820kΩ, ±5%
R730		**ERD25FJ103**	Carbon, 1/4W, 10kΩ, ±5%
R731		**ERD25TJ223**	Carbon, 1/4W, 22kΩ, ±5%
R732		**ERD25TJ184**	Carbon, 1/4W, 180kΩ, ±5%
R733		**ERD25TJ473**	Carbon, 1/4W, 47kΩ, ±5%
R734		**ERD25TJ153**	Carbon, 1/4W, 15kΩ, ±5%
R735, 736		**ERD25TJ223**	Carbon, 1/4W, 22kΩ, ±5%
R737, 738		**ERD25TJ223**	Carbon, 1/4W, 22kΩ, ±5%
R739		**ERD25TJ823**	Carbon, 1/4W, 82kΩ, ±5%
R741, 742		**ERD25TJ223**	Carbon, 1/4W, 22kΩ, ±5%
R743		**ERD25TJ563**	Carbon, 1/4W, 56kΩ, ±5%
R744		**ERD25TJ823**	Carbon, 1/4W, 82kΩ, ±5%
R746		**ERD25TJ393**	Carbon, 1/4W, 39kΩ, ±5%
R747		**ERG3ANJ391**	Metal Oxide, 3W, 390Ω, ±5%
R748, 749		**ERG1ANJ471**	Metal Oxide, 1W, 470Ω, ±5%
R750, 751		**ERD25FJ332**	Carbon, 1/4W, 3.3kΩ, ±5%
R801, 802		**ERD25TJ394**	Crbon, 1/4W, 390kΩ, ±5%
R803, 804		**ERD25TJ104**	Carbon, 1/4W, 100kΩ, ±5%
R805, 806		**ERD25FJ472**	Carbon, 1/4W, 4.7kΩ, ±5%
R807, 808		**ERD25FJ472**	Carbon, 1/4W, 4.7kΩ, ±5%
CAPACITORS			
C1	⚠	ECQE2A473MZ	Polypropylene, 250VAC, 0.047μF, ±20%
C2, 3	⚠	ECKDHS472MD	Ceramic, 400VAC, 0.0047μF, ±20%
C4, 5	⚠	ECKDHS472MD	Ceramic, 400VAC, 0.0047μF, ±20%
C101, 102		ECKD1H103ZF	Ceramic, 50V, 0.01μF, $\pm^{80}_{20}$%
C103, 104		ECCD1H820K	Ceramic, 50V, 82pF, ±10%
C105, 106		ECKD1H681KB	Ceramic, 50V, 680pF, ±10%
C107, 108		**ECEA0JS222**	Electrolytic, 6.3V, 2200μF
C109, 110		ECQM1H473JZ	Polyester, 50V, 0.047μF, ±5%
C111, 112		ECQM1H103JZ	Polyester, 50V, 0.01μF, ±5%
C113, 114		ECQM1H332KZ	Polyester, 50V, 0.0033μF, ±10%
C115, 116	⚠	ECEA1EN3R3S	Non-Polar Electrolytic, 25V, 3.3μF
C117, 118		ECQM1H472KZ	Polyester, 50V, 0.0047μF, ±10%
C119, 120		**ECEA50Z1**	Electrolytic, 50V, 1μF
C121, 122		**ECEA1ES470**	Electrolytic, 25V, 47μF
C123, 124		ECKD1H103ZF	Ceramic, 50V, 0.01μF, $\pm^{80}_{20}$%
C125		**ECEA1AS101**	Electrolytic, 10V, 100μF
C201, 202		ECQM1H682KZ	Polyester, 50V, 0.0068μF, ±10%
C203, 204		ECQM1H183KZ	Polyester, 50V, 0.018μF, ±10%
C205, 206		ECQM1H683KZ	Polyester, 50V, 0.068μF, ±10%
C207, 208		ECQM1H333KZ	Polyester, 50V, 0.033μF, ±10%
C251, 252		ECQM1H223KZ	Polyester, 50V, 0.022μF, ±10%
C253, 254		ECQM1H124KZ	Polyester, 50V, 0.12μF, ±10%
C255, 256		ECQM1H682KZ	Polyester, 50V, 0.0068μF, ±10%
C257, 258		ECQM1H393KZ	Polyester, 50V, 0.039μF, ±10%
C259, 260		ECCD1H181K	Ceramic, 50V, 180pF, ±10%
C261, 262		ECQS1821JZ	Styrol, 125V, 820pF, ±5%
C301, 302		ECCD1H121K	Ceramic, 50V, 120pF, ±10%
C303, 304		**ECEA50Z1**	Electrolytic, 50V, 1μF
C305, 306		ECCD2H120K	Ceramic, 500V, 12pF, ±10%
C307, 308		ECCD1H030C	Ceramic, 50V, 3pF, ±0.25pF
C309		ECKD2H221KB	Ceramic, 500V, 220pF, ±10%
C310		ECCD2H120K	Ceramic, 500V, 12pF, ±10%
C311, 312		ECCD1H030C	Ceramic, 50V, 3pF, ±0.25pF
C313 ~ 316		ECKD1H681KB	Ceramic, 50V, 680pF, ±10%
C317, 318		ECQM1H473KZ	Polyester, 50V, 0.047μF, ±10%
C319, 320		**ECEA1HS100**	Electrolytic, 50V, 10μF
C321, 322	⚠	ECEA1EN4R7S	Non-Polar, Electrolytic 25V, 4.7μF
C323, 324		ECKD2H221KB	Ceramic, 500V, 220pF, ±10%
C325, 326		**ECEA25Z4R7**	Electrolytic, 25V, 4.7μF
C327, 328		ECKD2H221KB	Ceramic, 500V, 220pF,
C329 ~ 332		**ECEA2AS100**	Electrolytic, 100V, 10μF
C333		ECCD2H120K	Ceramic, 500V, 12pF, ±10%
C334		ECKD2H221KB	Ceramic, 500V, 220pF, ±10%
C335, 336		ECCD1H030C	Ceramic, 50V, 3pF, ±0.25pF
C341, 342		ECQM1H473KZ	Polyester, 50V, 0.047μF, ±10%
C403		**ECEA50ZR47**	Electrolytic, 50V, 0.47μF
C404		**ECEA1HS100**	Electrolytic, 50V, 10μF
C405		**ECEA2AS010**	Electrolytic, 100V, 1μF
C406		**ECEA1HS101**	Electrolytic, 50V, 100μF
C407		**ECEA1HS221**	Electrolytic, 50V, 220μF
C408, 409		ECET1HV153Y	Electrolytic, 50V, 15,000μF
C412		ECKD1H102ZF	Ceramic, 50V, 0.001μF, $\pm^{80}_{20}$%
C451, 452		**ECEA1VS330**	Electrolytic, 35V, 33μF

■ EXPLODED VIEW

The product for [XA] area is equipped with AC outlet
* [XA] is available in East South Asia, Oceania, Africa, Middle Near East and Central South America.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T1
Power transformer
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D151 DC
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Areas

* [D] is available in Scandinavia.
* [EG] is available in F.R. Germany.
* [EW] is available in Switzerland.
* [EK] is available in United Kingdom.
* [EF] is available in France.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [EA] is available in Austria.
* [XA] is available in East South Asia, Oceania, Africa, Middle Near East and Central South America.
* [XL] is available in Australia.

Ref. No.		Part No.	Part Name & Description
C453, 454		**ECEA1VS101**	Electrolytic, 35V, 100μF
C455, 456		ECKD1H223ZF	Ceramic, 50V, 0.022μF, $\pm^{80}_{20}\%$
C551		ECKD1H103ZF	Ceramic, 50V, 0.01μF, $\pm^{80}_{20}\%$
C552	⚠	ECEA1HNR47S	Non-Polar, Electrolytic, 50V, 0.47μF
C601		ECKD1H102ZF	Ceramic, 50V, 0.001μF, $\pm^{80}_{20}\%$
C602		**ECEA50Z3R3**	Electrolytic, 50V, 3.3μF
C603		**ECEA1VS101**	Electrolytic, 35V, 100μF
C604	⚠	ECEA1CN101S	Non-Polar, Electrolytic, 16V, 100μF
C605		**ECEA1CS330**	Electrolytic, 16V, 33μF
C606		ECKD1H103ZF	Ceramic, 50V, 0.01μF, $\pm^{80}_{20}\%$
C701, 703	⚠	ECKDKC103PF	Ceramic, 400VAC, 0.01μF, $\pm^{100}_{0}\%$
C702		ECKD1H223ZF	Ceramic, 50V, 0.022μF, $\pm^{80}_{20}\%$
C710, 711		ECQM1H473KZ	Polyester, 50V, 0.047μF, ±10%
C712		ECQM1H683KZ	Polyester, 50V, 0.068μF, ±10%
C713		ECKD1H102ZF	Ceramic, 50V, 0.001μF, $\pm^{80}_{20}\%$
C715		**ECEA25Z4R7**	Electrolytic, 25V, 4.7μF
C716, 717		**ECEA1ES100**	Electrolytic, 25V, 10μF,
C718		ECKD1H103ZF	Ceramic, 50V, 0.01μF, $\pm^{80}_{20}\%$
C720		**ECEA50ZR1**	Electrolytic, 50V, 0.1μF,

REPLACEMENT PARTS LIST (Cabinet and Chassis Parts)

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Ⓚ -marked parts are used for black only, while ○ marked parts are for silver type only.
4. Parts other than Ⓚ - and ○-marked are used for both black and silver types.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Black type model No.: SU-V7 (K)

Ref. No.		Part No.	Part Name & Description
CABINET and CHASSIS PARTS			
1	○	SGWUV7D	Panel, Front Ass'y (Silver)
1	Ⓚ	SGWUV7KD	Panel, Front Ass'y (Black)
2		SBC337	Button, Power
3		SBN993	Knob, Treble/Bass/Balance
4		SHP9335	Ornament, Bass/Treble
5		SBN995	Knob, Speaker/Rec./Input
6		SBC339	Button, Mode/Loundness/Operation/Subsonic/Hight Filter
7		SBN991	Knob, Volume Control
8		SHP9299	Ornament, Volume Control
9		SHP9337	Ornament, Balance Control
10		SDE259–1	Filter, New Class A
11		SDU59–1	Plate, New Class A
12		SMP305	Lamp Cover, New Class A
13		SKU8990	Buttom Boad
14		SKL227–1	Foot, Set
15	○	SKC651S1	Cabinet (Silver)
15 [EK] only	○	SKC651S2	Cabinet (Silver)
15	Ⓚ	SKC651B1	Cabinet (Black)
15 [EK] only	Ⓚ	SKC651B2	Cabinet (Black)
16		SHS6111	Fiber, Cabinet
17		SMP303	L.E.D. Cover
18		SMY599	Heat Sink
19		SUW1359	Bracket
20		SUS227	Bracket
21		SJF4813–1	Terminal Board, Speakers
22		SJF3049N	Terminal Board, Input
23 [D, EB, EF, EK, EH, EW]		SGP2530–2A	Rear Panel
23 [EG]		SGPUV7E	Rear Panel, SGP2530–2A with Name Plate (SGT24450)
23 [XL]		SGPUV7X	Rear Panel, SGP2530–4A with Name Plate (SGT24630)
23 [XA]		SGP2530–3A	Rear Panel
24		SJF4101	Terminal Board Ground
25 [XA] only	⚠	SJS601–2	Socket, AC Outlet
26 [D, EB, EF, EG, EH, EA]	⚠	SJA97	AC Cord
26 [EW, XA]	⚠	SJA111	AC Cord
26 [EK]	⚠	QFC1205M	AC Cord
26 [XL]	⚠	QFC1207MA	AC Cord
27		XCJ6P21B–A1	Jack, Headphone
29		ESA3379B	Wire, Remote Control, Rec. Output
30		ESA3380B	Wire, Remote Control, Input Selector
31		SJS5627	Connector, 6 Pin
31		SJS5519	Connector, 5 Pin
32 [D, EB, EF, EG, EH, EW, EA, XA]		SHR127	Bushing, AC Cord
32 [EK]		SHR129	Bushing, AC Cord
32 [XL]		SHR131	Bushing, AC Cord
33		SJS6513	Din Connector
SCREWS, WASHERS and NUTS			
N 50		**XTB3+8BFZ**	Screw, Tapping ⊕ 3x8
N 51		SNE59–1	Washer
N 52		**XNS12**	Nut (Headphones Jack)
N 53		SNE4021	Nut (Volume)
N 54		**XTV3+12BFN**	Screw, Tapping, ⊕ 3x12 (Foot)
N 55		XYA3+FC8FN	Screw, Tapping, ⊕ 3x8
N 56		XSB26+5FZ	Screw, Tapping, ⊕ 26x5
N 57		SNE2053	Screw
N 58	○	**XTB4+8BFN**	Screw, ⊕ 4x8 (Cabinet) (Silver)
N 58	Ⓚ	**XTB4+8BFZ**	Screw, ⊕ 4x8 (Cabinet) (Black)
N 59		**XWC6B**	Washer, φ6
N 60		**XNG6E**	Nut, φ6
N 61		**XSN3+12S**	Screw, ⊕ 3x12
N 62		XYN3+C6FZS	Screw, ⊕ 3x6
ACCESSORIES			
A1 [D, EB, EF, EG, EH, EW]		SQF10773	Instructions Book, Printed Matter
A1 [XL, EK]		SQF10777	Instructions Book, Printed Matter
A1 [XA]		SQF10779	Instructions Book, Printed Matter
A2 [XA] only	⚠	SJP5213–1	Plug Adapter, AC Power
A3 [XA] only	⚠	SJP5215	Plug Adapter, AC Power
PACKING PARTS			
P1 [D, EB, EG, EH, XA, XL]		SPG3021	Carton Box
P1 [EW, EK]		SPG3023	Carton Box
P1 [EF]		SPG3025	Carton Box
P2 [D, EB, EF, EG, EH XA, XL]		SPS3023–1	Pad, Left Side
P2 [D, EB, EF, EG, EH, XA, XL]		SPS3025–1	Pad, Right Side
P3 [EW, EK]		SPS3023	Pad, Left Side
P3 [EW, EK]		SPS3025	Pad, Right Side
P4		SPP689	Polyethylene Bag

● Accessories

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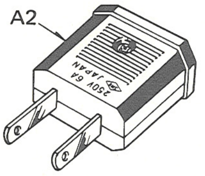

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